

Invitation to Bid

Town of Warren, RI

VoIP-based Dispatch Console System, a Town-Wide NVR Camera System and a Town-Wide Wireless Point-to-Point IP/TDM Network.

The Town of Warren seeks sealed bids for a Voice over Internet Protocol-based Dispatch console System; a Town-Wide NVR Camera System and a Town-Wide Wireless Point-to-Point IP/TDM Network.

Specifications are available online at the Town Website (www.townofwarren-ri.gov), and, between 9 a.m. and 4 p.m. Monday through Friday, in the Warren Town Clerk's Office, 514 Main Street.

Bids shall be submitted in a sealed envelope marked "VoIP BASED DISPATCH CONSOLE SYSTEM," and delivered to the Town Clerk's Office prior to 11:30 a.m. April 29, 2011, at which time the bids will be publicly opened and read. There will be a \$25.00 charge for anyone obtaining the bid through the Town Clerk's Office.

The Town of Warren reserves the right to reject any or all bids and to waive any informalities and to accept the proposal deemed to be in the best interest of the Town.

Persons requesting interpreter services for the hearing impaired must notify the Town Clerk's Office not less than 48 hours prior to the bid opening. (401-245-7340)

Warren is an equal opportunity provider and employer.

Julie A. Coelho

Town Clerk

INSTRUCTIONS TO BIDDERS

1. SUBMISSION OF BID

- 1.1 To be considered responsive on the base bid, all vendors must submit bids for the radio and telephone system.
 - 1.1.1 Such vendors may submit bids on neither, either or both Optional items.
- 1.2 Bidder shall provide a list of all parts (manufacturer and part number), design drawings and project timeline as part of this bid submission.
- 1.3 Bidders shall complete the appropriate forms in the Bid Specifications as follows:
 - 1.3.1 Fill out pricing for radio console parts and labor in Sections 18.1-18.3.
 - 1.3.2 Fill out pricing for telephone system parts and labor in Sections 23.1-23.8 and 24.
 - 1.3.3 Fill out summary of pricing sheets on pages 36 and 37 with the pricing information from 1.3.1 and 1.3.2.
 - 1.3.4 If bidding on Optional A or B or both, fill out page 38.
 - 1.3.5 Fill out bid sheet on page 39 using information from 1.3.3 and 1.3.4.
 - 1.3.6 Sign and date bid sheet.
- 1.4 In accordance with Rhode Island General Law 37-13-14, bidders for public works/public building contracts in excess of \$50,000 shall furnish a performance bond, upon conditional award of the contract, at 100 percent of the contract price, conditioned upon faithful performance of the Contract. A Labor and Materials Bond (payment bond), at full contract value, is required upon conditional award of the contract. All surety companies must be listed with The Federal Department of the Treasury, Fiscal Services, Circular 570 (Latest revision published by The Federal Register) and be licensed to do business in Rhode Island.

2. DEFINITION OF TERMS

- 2.1 The word “Town” is used to designate the Town of Warren having its principal office at 514 Main Street, Warren, RI 02995-4369, or its duly authorized representatives for whom the goods or services described are to be acquired.
- 2.2 The term “Contract Documents” means the Contract and all documents contained in the “Specifications and Bid Documents” along with any addenda thereto, and also includes all Plans, Reports or other drawings or materials specifically referred to in the Contract Documents.

- 2.3 The word “Bid” includes the word “Proposal” and means the submission by any entity in response to a an “Invitation to Bid” or “Request for Proposals”. A “bid” consists of submission of the proposal form and all other fully executed contract documents.
- 2.4 The word “Bidder” is used to designate any party submitting a Bid or Proposal to supply the goods or services specified in the Contract Documents.
- 2.5 The words “Goods or Services” mean that which is required by the Contract Documents, whether fully or partially provided, and includes all other labor, materials, equipment and services provided or to be provided to fulfill the obligations of this Contract.

3. BIDDERS TO EXAMINE CONTRACT DOCUMENTS

- 3.1 In accordance with the terms and conditions of the contract documents, the Bidder must do the following before submitting a bid:
 - 3.1.1 Examine the form of Contract and the Contract Documents thoroughly.
 - 3.1.2 Become familiar with federal, state and local laws, ordinances, rules and regulations that may in any way affect the cost, progress or performance of the Contract.
- 3.2 Bidders must carefully examine the contract Documents and, in addition, must use whatever means may be necessary to completely satisfy themselves of the extent and requirements thereof.
- 3.3 Submission of a Bid by a bidder is a representation that the Bidder has become familiar with the extent and requirements of the Contract and has correlated personal observations with the requirements of the Contract Documents.
- 3.4 Failure on the part of Bidders to thoroughly acquaint themselves with all details of all goods or services to be provided under the Contract and the conditions under which they will be provided will not be considered as a valid excuse for claims of any kind after the award of the Contract.
- 3.5 The Town of Warren reserves the right to enter into a contract for Optional A and Optional B separate and apart from the VoIP Dispatch and Telephony contract included with this request for proposal.

4. INTERPRETATION OF CONTRACT DOCUMENTS

- 4.1 If Bidders fail to fully understand any clause or requirement of the Contract Documents, inquiry must be made of the Purchasing Director for an interpretation in advance of the submission of the bid. Also, Bidders shall promptly notify the Purchasing Director of any ambiguity, inconsistency or error that they may discover upon examination of the Contract Documents. Such inquiries or notices shall be in writing and shall be received by the Purchasing Director at least five (5) business days prior to the date fixed for the

opening of bids. Inquiries that are received fewer than five (5) business days prior to the date fixed for the opening of bids may not be answered. Answers will be issued in the form of addenda mailed or delivered to all parties known as having received a set of the Contract Documents. Only those questions that are answered by written addenda shall be binding. Oral and any other interpretations that may be given will be considered as having no legal effect on either the Bidder or the Town.

4.1.1 Receipt of addenda must be acknowledged in the space provided for the purpose in the Bid Forms. If a Bidder does not acknowledge receipt of any Addendum, he shall still be required to comply with said Addendum.

4.1.2 All Addenda shall become part of the Contract Documents and shall take precedence over the original Contract Documents. Subsequent Addenda shall supersede previous addenda.

4.2 In the interest of brevity, the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an”, but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

5 LABOR LAWS

5.1 All Bidders are advised to inform themselves as to the requirements of federal, State of Rhode Island and local laws governing the employment of labor. Bidders are required to comply with all such laws and regulations. Attention is called to the laws covering hours of work and minimum wages and Bidders are advised to inform themselves of these requirements.

6. SUBCONTRACTOR

6.1 Subcontractors included in the bid submission shall not be replaced nor shall any other subcontractor shall be employed by the Contractor for the provision of the required goods and services without the express written consent of the Town.

7. BID SUBMITTALS AND EVALUATION

7.1 Bids must be submitted upon the Bid Form included in the Contract Documents. The Bid form must be fully filled out. Prices must be written in words and also stated in figures. Forms must be filled out in ink, typed or printed. Pencil submissions are not allowed. Failure on the part of Bidder to conform to these requirements may, in the sole discretion of the Town, to render the Bid non-responsive.

7.2 Bids shall be enclosed in a sealed envelope. On the outside of the envelope, bidder shall show its name and address and shall indicate clearly “BID FOR VoIP BASED DISPATCH CONSOLE SYSTEM.”

- 7.3 Proposer shall provide an original and EIGHT copies of the proposal signed by an authorized representative of the company, including name, title, address, and telephone number of a person who is the responder's representative.
- 7.4 All Bids are due at 11:30 a.m. on April 29, 2011. Any Bid received after the designated time shall be considered unresponsive and shall be returned unopened to the bidder. One copy of a submitted proposal will be retained for official files and become a public record.
- 7.5 All Bids shall be addressed to:
Town Clerk's Office
Town of Warren
514 Main Street
Warren, RI 02885
- Bids may be hand-delivered, sent via U.S. Postal Service or by overnight delivery service such as FedEx or UPS. The Town of Warren will not be responsible for late delivery without regard to the method of delivery.
- 7.6 All Bids must be accompanied by a certificate of insurance listing the Town of Warren as an additional insured and demonstrating the following coverages:
- 7.6.1 Worker Compensation and related coverages.
- 7.6.1a Worker Compensation at Statutory limits
- 7.6.1b Employer Liability: \$100,000 each accident; \$500,000 disease-policy limit; \$100,000 disease-each employee.
- 7.6.2 Contractor General Liability which shall include Contractor Protective, Products and Completed Operations and Contractual Liability: \$2 million general aggregate; \$2 million products and completed operations aggregate; \$1 million personal and advertising injury; \$1 million each occurrence limit; \$50,000 fire damage limit; \$5,000 medical payments.
- 7.6.3 Automobile Liability: \$1 million combined single limit for bodily injury and property damage.
- 7.7. Proposals will be evaluated in accordance with the following criteria:
- 7.7.1 Completeness of proposal
- 7.7.2 Understanding and acceptability of requirements
- 7.7.3 Corporate experience, financial stability and quality of references
- 7.7.4 Quality of service
- 7.7.5 Overall Cost
- 7.7.6 Ability to begin work on the proposed start date
- 7.7.7 Proposal recommendations exceeding minimum requirements

8. REJECTION OF BIDS

- 8.1 The Town may disqualify a Bidder if the Town has had prior negative experience with the Bidder. In addition, the Town reserves the right to reject any Bid that does not conform to the Contract Document requirements.
- 8.2 In the event that the Town shall reject any or all Bidders for any reason whatsoever, no Bidder shall be entitled to any compensation in connection with the preparation and submittal of the Bid nor for any profits that might have been anticipated by the Bidder.

9. AWARD OF CONTRACT

- 9.1 In evaluating the Bids, the Town shall consider the qualifications of the Bidder and whether Bids comply with the prescribed requirements.
- 9.2 The Town may consider operating costs, maintenance requirements, performance data and guarantees of materials and equipment.
- 9.3 The Town may conduct such investigations as it deems necessary to assist in the evaluation of any Bid, and to establish the responsibility, qualifications and financial ability of the Bidders to complete and perform the Contract in accordance with the Contract Documents to the satisfaction of the Town within the Contract time.
- 9.4 Bidders are hereby advised that the Contract, if awarded, shall be awarded to the lowest responsive, responsible Bidder based upon the evaluation by the Town. Criteria include, in addition to those cited in Paragraph 7.2 above, the relationship of the goods or services offered to the specifications, performance and reliability of vendor and acquisition cost.

10. GENERAL CONDITIONS

- 10.1 The Town will not be obligated to return any materials submitted in response to this RFP.
- 10.2. The Town retains the full rights to analyze and consider the proposal materials for its purposes without compensation to or approval of the proposer.
- 10.3 This RFP may or may not result in award of a contract. The Town reserves the right to cancel this RFP at any time, and for any reason, and to reject any or all bids.
- 10.4. Receipt of these bid materials from the Town or submission of a bid to the Town confers no rights upon the vendor nor obligates the Town in any manner.
- 10.5. The Town reserves the right to accept or reject any and/or all proposals, to waive irregularities and technicalities, and to request resubmission of quotes.
- 10.6. The Town reserves the right to negotiate with any, all, or none of the bidders responding to this RFP within the parameters of Rhode Island General Laws.

- 10.7. The Town is relying upon the vendor's expertise to answer all questions in this RFP document. **Questions pertaining to the RFP must be submitted to the Town via email at csilva@townofwarren-ri.gov. Questions received outside this parameter will not be addressed.**
- 10.8. This RFP should not be considered as an offer. It constitutes only an invitation to bid.
- 10.9. Proposals may be disqualified at any time by the Town upon its receipt of evidence of collusion with intent to defraud, or other illegal or tortuous practices upon the part of the proposer.
- 10.10. All costs incurred in preparing the response are the responsibility of the proposer and the Town assumes no responsibility or accepts any associated costs.
- 10.11. The Town reserves the right to accept any portion or all of any proposal.
- 10.12. Any bid may be withdrawn until the date and time set for the proposed deadline. Any bid not so withdrawn shall constitute an irrevocable offer, for a period of ninety (90) days, or until one or more of the bids has been selected by the Town, to sell the services set forth in these specifications.
- 10.13. Proposers will not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin. Proposers will take affirmative action to ensure that minority and disadvantaged applicants are employed and employees are treated during their employment without regard to race, religion, color, sex, age or national origin.
- 10.14. A walkthrough of the areas for the dispatch and telephone system installation will be held at 10:00 am on April 14, 2011 in the Government Center, One Joyce Street, Warren, RI. Attendance is not a requirement to submit a bid. Questions will not be entertained at this time. As noted in Section 10.7, questions pertaining to the project will only be accepted and addressed in writing.
- 10.15. Bidders are responsible for including a dispatch design submission as part of the budget.

BIDDER QUALIFICATION FORM

Bidder's Name _____

Each bidder is required to submit information that exemplifies their qualifications to successfully implement the scope of work required by the Contract Documents. At a minimum, the information submitted shall include information requested on the forms below, Attach additional sheets if necessary.

Previous Experience with Similar Work

Provide written descriptions of at least three but not more than 10 previous projects with similar work efforts,

1. Project Name _____
Project Location _____
Scope of Work _____

Date Completed _____
Owner Representative and Contact Number _____

2. Project Name _____
Project Location _____
Scope of Work _____

Date Completed _____
Owner Representative and Contact Number _____

3. Project Name _____
Project Location _____
Scope of Work _____

Date Completed _____
Owner Representative and Contact Number _____

4. Project Name _____
Project Location _____
Scope of Work _____
Date Completed _____
Owner Representative and Contact Number _____
5. Project Name _____
Project Location _____
Scope of Work _____
Date Completed _____
Owner Representative and Contact Number _____

List of Subcontractors

1. Name _____
Address _____
Contact Person _____ Phone _____
Work to be Performed by Subcontractor: _____
-

2. Name _____
Address _____
Contact Person _____ Phone _____
Work to be Performed by Subcontractor: _____
-

3. Name _____
Address _____
Contact Person _____ Phone _____

Work to be Performed by Subcontractor:

NON-COLLUSION AFFIDAVIT

To: Town of Warren

Re: VoIP-based Dispatch Console System

STATE OF RHODE ISLAND}

COUNTY OF BRISTOL }

I (name) of the (municipality)

In the County of and the State of , of full age, being duly sworn according to law, on my oath depose and say I am (official position) of (bidder's name), the Bidder making the Bid for this Project.

I execute the said Bid with full authority to do so.

I, and to the best of my knowledge, the Bidder, and any officer, director, employee or other representative of the Bidder, have not, directly or indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free, competitive bidding in connection with the above named Project.

All statements contained in said Bid and all Contract Documents and in this affidavit are true and correct, and made with full knowledge that the Project Owner relies upon the truth of the statements contained in said Bid and Contract Documents, and in the statements contained in this affidavit, in awarding the contract for the said Project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee except bona fide employees or bona fide established commercial or selling agencies maintained by the Bidder.

Sworn on behalf of: _____

By: _____

Sworn and subscribed to before me this day of , 2011

BIDDER CORPORATE/PARTNERSHIP RESOLUTION

This document shall be executed where the bidder is a corporation or partnership and is evidence of authority to bind the bidder if it is such an entity.

To: Town of Warren

Re: VoIP-based Dispatch Console System

Resolved that the following named Officers or Partners

Be and they are hereby authorized and empowered to sign and submit to the Town of Warren the attached Bid and other Bid Submission Documents, and further that said Officers or Partners are authorized to execute the Contract and any other agreement or bond or statement necessary to fulfill the obligations required by the Contract Documents incurred by the acceptance of the Bid by the Town of Warren.

I hereby certify that the above constitutes a true copy of a Resolution or Partnership Agreement passed and approved by the Board of Directors or Partners at a meeting held on the _____ day of 20____.

Signature of Bidder's Authorized Representative: _____

Title of Signer: _____ Date: _____

Attested by: _____

Title: _____

Date: _____

ACKNOWLEDGEMENT OF PARTNERSHIP

STATE OF _____ }
}
COUNTY OF _____ }

I certify that on this _____ day of _____ 2011, before me personally appeared to me known and known to be one of the members of the Partnership of _____ described in and who executed the foregoing instrument, and he/she acknowledged to me that he/she executed the same as and for the act and deed of said firm.

Signed and sworn to before me on _____, 2011.

L.S. _____

Sworn and subscribed to before me this _____ day of _____, 2011

CONTRACT

FOR: VoIP-based Dispatch Console System

THIS CONTRACT, made this _____ day of _____, 20____, by and between
Town of Warren
514 Main Street
Warren, RI 02885-4369

Hereinafter called the OWNER, and

Contractor Name:
Contractor Address
City, State, ZIP

Hereinafter called the CONTRACTOR

WHEREAS, the OWNER requires one (1) Town-Wide VoIP Communications System, inclusive of one (1) VoIP-based Dispatch Console System and one (1) VoIP Telephone System, hereinafter called the WORK, in accordance with the Contract Documents and all applicable federal, state and local laws and regulations,

NOW, THEREFORE, the OWNER and the CONTRACTOR, in exchange for the mutual considerations set forth herein, agree as follows:

ARTICLE I: CONTRACTOR STATUS

CONTRACTOR is under the Control of the OWNER as to the result of the services only, and not as to the means by which such result is accomplished. CONTRACTOR agrees that it is an Independent Contractor and that:

a. OWNER is not providing CONTRACTOR or its agents or employees any medical, life or disability insurance coverage or any public, professional, product or other liability insurance to cover risks, if any, to CONTRACTOR. CONTRACTOR is excluded from the benefits of state worker compensation insurance and state unemployment and disability insurance benefits.

b. OWNER shall not make deductions from CONTRACTOR's compensation for federal or state income tax withholding, Federal Insurance Contribution Act, state disability funds or Federal Unemployment Tax Act, unless required to do so by applicable law.

c. CONTRACTOR is not an employee of OWNER and is excluded from the benefits of OWNER's policies for its employees, including, without limitation, overtime, minimum wage, accrued vacation, sick days, holiday and other benefits of state and federal labor laws.

d. CONTRACTOR and its employees shall follow applicable health and safety precautions which meet federal, state and local regulations. OWNER will not implement or be responsible for the health and safety requirements of CONTRACTOR. OWNER's observation of the WORK of the CONTRACTOR on the project shall not relieve CONTRACTOR of the responsibility from performing its work in accordance with applicable plans, specifications and health and safety requirements.

ARTICLE II: SCOPE OF WORK

OWNER agrees to engage CONTRACTOR as an independent contractor to provide all labor and materials, tools and services in full accord with the Contract Documents issued by the Town. CONTRACTOR agrees to perform these services in a professional manner that is consistent with other contractors performing similar work in the geographic area at the time the services are rendered.

ARTICLE I II: THE CONTRACT SUM

The OWNER shall pay the CONTRACTOR for the performance of the WORK, subject to additions and deductions provided by the Contract Documents, the total sum of

Amount in words

\$ _____

Amount in numbers

a. The CONTRACTOR shall be paid the prices stipulated in the Bid in full compensation for everything furnished and performed by the CONTRACTOR under this Contract, including all WORK required, but not specifically mentioned, and all loss or damage arising out of the nature of the aforesaid WORK, the action of the elements, any unforeseen obstruction or difficulty encountered in the prosecution of the WORK, all risks of every description connected with the WORK, all expenses incurred by or in consequence of the suspension or discontinuance of the WORK as herein specified, and for well and faithfully completing the WORK and the whole thereof, as herein provided.

b. CONTRACTOR shall receive no other compensation or reimbursement of any nature from OWNER under this agreement. If any local, state or federal license, excise or other taxes are imposed on any sums due the CONTRACTOR, OWNER is authorized to withhold or deduct such taxes applicable or proportionate to the sums otherwise due CONTRACTOR.

c. CONTRACTOR shall submit invoices for verification and approval.

d. Except as specifically set forth in this Agreement, neither party shall hold the other responsible or liable for damages or delays in performance caused by acts of God, interruptions in the availability of labor, or other events beyond the control of the other party, or that could not have reasonably been foreseen or prevented. For this purpose, such acts or events shall include unusually severe weather affecting performance of services, floods, epidemics, war, riots, strikes, lockouts, or other industrial disturbances, protest demonstrations, unanticipated project site conditions and inability, with reasonable diligence, to supply personnel, equipment or material to the project. Should such acts or events occur, both parties shall use their best efforts to overcome the difficulties arising and to resume as soon as reasonably possible the normal pursuit of the WORK. Delays within the scope of this provision which cumulatively exceed thirty (30) days in any six-month period shall, at the option of either party, make this Agreement subject to termination or renegotiation.

ARTICLE IV: TIME OF COMPLETION

a. The WORK to be performed under this Contract shall be completed within **90 calendar days** from the date of the Notice to Proceed.

b. The time to completion designated in “a” above shall be considered the essence of the Contract and, time being of the essence of this Contract, CONTRACTOR shall, after notification by the OWNER to commence the WORK, prosecute the WORK diligently, using such means and methods as will insure completion within the time designated..

c. The CONTRACTOR shall pay monetary liquidated damages as set forth in Schedule A hereof to the OWNER for each and every calendar day that the CONTRACTOR shall be in default in completing the WORK within the time stipulated in the Contract Documents or as a result of such extensions thereof that shall be agreed upon by the parties.

ARTICLE V: THE CONTRACT DOCUMENTS

a. The parties agree that the terms and conditions contained in the Contract Documents (including bid information, bid documents, specifications, supplemental specifications and drawings) are made part of this Contract and are binding on both parties as if all conditions contained in the Contract Documents were set forth in this Contract.

b. The Contract Documents comprise the entire agreement between the OWNER and the CONTRACTOR and may only be amended as herein described.

ARTICLE V: SUBCONTRACTORS

a. The CONTRACTOR shall provide the name or names of all subcontractors and the portion of the WORK they are to perform. The OWNER may, for good cause shown,

reject the proposed subcontractor and the CONTRACTOR shall replace said subcontractor with another to the satisfaction of the OWNER.

- b. CONTRACTOR shall not employ any other consultants or subcontractors for services related to this Agreement unless such consultants or subcontractors have executed an agreement under which they are bound by the terms of this Agreement.
- c. The CONTRACTOR agrees to bind every subcontractor by the terms of the Contract Documents. The Contract Documents shall not be construed as creating any contractual relationship between any subcontractor and the OWNER. Additional terms concerning the duties and obligations of the CONTRACTOR and its subcontractors are further defined in the Contract Documents.

ARTICLE VII: CONTRACTOR'S RESPONSIBILITIES

- a. The WORK is to be performed in accordance with the Scope of Services set forth in the Bid Documents.
- b. CONTRACTOR will determine the method, details and means of performing the WORK and may, at its own expense, employ agents or employees, except as otherwise agreed to and as set forth in this Agreement. OWNER may request the CONTRACTOR to submit its methods and means of performing its services for review before the WORK is performed. CONTRACTOR shall not have the power to enter into contracts on behalf of the OWNER, nor shall CONTRACTOR represent that it has such power.
- c. CONTRACTOR accepts exclusive liability for payroll taxes, self-employment taxes and Social Security and other contributions that are based on the compensation paid to the CONTRACTOR, or to any agents or employees of the CONTRACTOR. CONTRACTOR shall reimburse, indemnify and defend OWNER for and against any such taxes or contributions that the OWNER may be compelled to pay. OWNER shall not be liable for any expenses or costs in relation to CONTRACTOR's agents or employees except as otherwise agreed to in writing by the OWNER.
- d. CONTRACTOR agrees to act in a manner that will not detrimentally affect the operation or reputation of the OWNER.
- e. CONTRACTOR warrants that all services performed under this Agreement shall be performed by personnel who are qualified and whose recommendations, guidance and performance reflect professional knowledge, judgment, workmanship and performance in accordance with standards generally accepted and appropriate to the industry. All services and deliverables shall be wholly original with the CONTRACTOR and shall not infringe on a copyright, patent or other rights of anyone else.
- f. CONTRACTOR hereby assigns, sells, transfers and conveys to OWNER all of CONTRACTOR's existing and future right, title and interest in and to the WORK

performed subject to the scope of Services as set forth in the Bid Documents

g. CONTRACTOR agrees that all oral and written information, computer programs, data, know-how, research, processes, designs, ideas, techniques, needs or specifications, financial statements or documents which have been or will be disclosed directly or indirectly to it by or on behalf of the OWNER shall be maintained in confidence by CONTRACTOR and shall not be disclosed to anyone without OWNER's prior express written consent, except to the extent that such information is or becomes publicly available through an act or omission of CONTRACTOR

h. To the extent that OWNER does not otherwise specifically request delivery of records or results, CONTRACTOR agrees to retain all records and results of WORK performed under this Agreement for a period of not fewer than three (3) years from the date of completion of the Contractor Services or for a period specified in the Prime Contract, if applicable.

i. CONTRACTOR shall comply with all federal, state and local laws, codes, rules and regulations and shall obtain all applicable licenses and permits for the conduct of its business and the performance of the Scope of Services herein.

j. The CONTRACTOR shall be responsible for proceeding with the WORK and adhering to the schedule during all disputes or disagreements with the OWNER. No WORK shall be delayed or postponed pending resolution of any dispute or disagreement.

k. The CONTRACTOR shall pay to the OWNER, and the OWNER shall have the right to deduct from the full amount of all expenses, losses and damages from all monies due or to become due to the CONTRACTOR under this Contract for any of the following:

1. Any defect, omission or mistake of the CONTRACTOR or its employees; and the repair of same, as determined by the Town.
2. All costs of consulting and inspection work after the specified time for the Contract.
3. All costs incurred by the OWNER for overtime payments to the inspection personnel caused by the CONTRACTOR's overtime work. Overtime is considered as all hours worked exceeding eight (8) hours per day or forty (40) hours per week; all hours worked on Saturday or Sunday, and all hours worked on legal holidays observed by the OWNER.
4. Liquidated Damages in the amount set forth in Schedule A hereof for each and every calendar day that the CONTRACTOR shall be in default of completing the WORK of the Contract. This sum is hereby agreed to be

proper and reasonable liquidated damages that the OWNER will suffer by reason of such default.

5. All costs associated with liens filed by any of the CONTRACTOR's subcontractors seeking payment for work and/or services performed in connection with this Contract.

1. During the term of this Agreement, CONTRACTOR shall not knowingly accept employment or engage in any consulting or other services which would create a conflict of interest with the Scope of Work to be performed hereunder, or in any way compromise the WORK to be performed under this Agreement. So long as CONTRACTOR complies with the provisions of this Agreement, CONTRACTOR is free to offer its services to any other person. This Agreement shall not create an exclusive contractual relationship between CONTRACTOR and OWNER.

ARTICLE VIII: INSURANCE AND INDEMNIFICATION

- a. The CONTRACTOR shall, to the fullest extent permitted by law, indemnify, defend and hold harmless the OWNER and its respective officers, employees and agents against any loss, liability, claims or demands (including death and/or property damage) arising out of or resulting, in whole or in part, from the CONTRACTOR's performance of this Contract.

- b. The CONTRACTOR shall provide insurance required by the Contract Documents to completely protect and save harmless the OWNER, its consultants, and agents and employees of any of them, from any and all losses, liens, claims, suits, judgments and proceedings of whatever nature arising out of the conduct of the WORK or the performance of the CONTRACTOR.

- c. All insurance that is required to be maintained by the CONTRACTOR shall be in the amounts and for the coverages specified in the Contract Documents and with such insurance companies as approved by the OWNER. Insurance companies must be licensed to do business in the State of Rhode Island,

- d. Certificates of Insurance shall name the OWNER, its consultants, and agents and employees of any of them, as additional insured, as required in the Contract Documents. Should any of the WORK proceed without the submission of a Certificate of Insurance, such allowance shall not be deemed a waiver of these insurance requirements and the CONTRACTOR shall nevertheless be responsible for providing such coverage.

- e. All proof of insurance submitted to the Town shall clearly set forth all exclusions and deductible clauses. The Town may allow certain deductible clauses which are not considered excessive, overly broad, or harmful to the interests of the Town. Standard exclusions will be allowed provided they are not inconsistent with the requirements

hereof. Allowance of any additional exclusion is at the discretion of the Town. Regardless of the allowance of exclusions or deductions by the Town, CONTRACTOR shall be responsible for the deductible limit of the policy and all exclusions consistent with the risks it assumes under this Contract and as imposed by law

f. In the event that CONTRACTOR provides evidence of insurance in the form of certificates of insurance, valid for a period of time less than the period during which CONTRACTOR is required by the terms of this Contract to maintain insurance, said certificates shall be acceptable, but CONTRACTOR shall be obligated to renew its insurance policies as necessary and to provide new certificates of insurance from time to time, so that the Town is continuously in possession of evidence of CONTRACTOR's insurance in accordance with the foregoing provisions

g. Insurance coverage in the minimum amounts required by OWNER shall not be construed to relieve CONTRACTOR for liability in excess of such coverage, nor does it preclude the Town from taking such other actions as are available to it under any other provisions of this Contract or otherwise in law.

h. Failure or refusal of CONTRACTOR to renew its insurance policy, or cancellation, termination or modification of the policy so that the insurance does not meet the requirements of this Contract shall constitute a breach of this Contract.

ARTICLE IX: WAIVERS

Neither the inspection by the OWNER or the OWNER's agents, nor any order by the OWNER for the payment of money, nor payment for or acceptance of the whole or any part of the WORK by the OWNER, nor any extension of time or any possession taken by the OWNER or its employees shall operate as a waiver of any provision of this Contract, any power herein reserved to the OWNER, or any right to damages herein provided. No waiver of any breach of this Contract shall be held to be a waiver of any other or subsequent breach. Any remedy provided in this Contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided and in addition to all other suits, actions, or legal proceedings. OWNER shall also be entitled as of right to a writ of injunction against any breach of any of the provisions of this Contract.

ARTICLE X; RESPONSIBILITY OF THE OWNER

a. All WORK shall be done under the observation of an authorized representative of the OWNER. The OWNER shall decide any and all questions which may arise regarding the quality and acceptability of materials furnished, work performed, rate of progress of

work, interpretation of Contract Documents, and all questions concerning the acceptable fulfillment of the Contract by the CONTRACTOR.

b. The OWNER shall not, during visits to the PROJECT site or as a result of observations of the CONTRACTOR's work in progress, supervise, direct or have control over CONTRACTOR's work, nor shall the OWNER have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by the CONTRACTOR. for any safety precautions and programs incident to the work of CONTRACTOR, or for any failure of CONTRACTOR to comply with laws, rules, regulations, ordinances, codes or orders applicable to the CONTRACTOR's furnishing and performing the WORK.

ARTICLE XI: SUCCESSORS AND ASSIGNS

This Contract and all of the covenants herein shall be binding upon the OWNER and the CONTRACTOR respectively, and the CONTRACTOR's subcontractors, sub consultants, partners, successors, assigns and legal representatives. Neither the OWNER nor the CONTRACTOR shall have any right to assign, transfer or sublet their interests and obligations hereunder without written consent of the other party.

ARTICLE XII: TERMINATION

a. The OWNER may, upon seven days written notice to the CONTRACTOR, and at any time after the execution of this Contract, terminate or limit the services of the CONTRACTOR furnished hereunder, for any reason, including, but not limited to abandonment of the project, or unavailability of funds to complete the WORK.

b. In the event of such termination, the CONTRACTOR shall be compensated for its authorized services rendered up to that date, and all reasonable shutdown costs.

ARTICLE XIII: GUARANTEE AND CORRECTION OF DEFECTIVE WORK

a. The CONTRACTOR warrants and guarantees to the OWNER that all WORK will be performed in accordance with all applicable federal, state and local laws, standards and regulations and these Contract Documents; and that the WORK will not be defective.

b. If within one (1) year after the acceptance date, any installation work is found to be defective, the CONTRACTOR shall promptly correct the installation as necessary, as directed by the OWNER, and at no additional cost to the OWNER.

ARTICLE XIV: DISPUTE RESOLUTION

a. The parties shall attempt in good faith to resolve all disputes (“Controversy”) promptly by negotiation as follows: Either party may give the other written notice of any Controversy not resolved in the normal course of business. Managers of both parties at levels at least one level above the project personnel involved in the Controversy shall meet at a mutually acceptable time and place within five (5) days after delivery of such notice, and thereafter as often as they reasonably deem necessary to resolve the Controversy. If the matter has not been resolved within thirty (30) days after such referral, or if no meeting has taken place within ten (10) days after such referral, either party may initiate mediation as provided hereunder. All negotiations pursuant to this clause are confidential and shall be treated as compromise and settlement negotiations for the purpose of the Federal Rules of Evidence and state Rules of Evidence.

b. In the event that any Controversy arising out of or relating to this Agreement is not resolved in accordance with procedures provided herein, such Controversy shall be submitted to mediation with a mutually agreed upon mediator. The mediation shall be foiled at the regional office of the agreed upon mediator closest to the project site. The mediation shall take place at OWNER’s office unless otherwise agreed to by the parties. If the mediation process has not resolved the Controversy within thirty (30) days of the submission of the matter to mediation, or such longer period as the parties may agree upon, the mediation process shall cease. All mediation documents and discussions pursuant to this clause are confidential and shall be treated as compromise and settlement negotiations for the purpose of the Federal Rules of Evidence and state Rules of Evidence. Nothing herein shall limit the rights and remedies that the parties may have under this Agreement or under other legal and equitable proceedings.

ARTICLE XV: NOTICES

All notices authorized or required between the parties, or required by any of the provisions herein, shall be given in writing and shall be sent by certified mail, return receipt requested, and deposited the United States Postal Service (USPS) with postage prepaid and addressed to the intended party at the address set forth below. Notices sent in this manner shall be deemed given seven (7) business days after mailing. Notices may also be given by personal delivery, sent by a regionally recognized overnight delivery service (i.e. UPS, FedEx) or sent by facsimile where a printed confirmation is available. Notices sent other than by the USPS shall be deemed given when delivered (if personal or by overnight courier) or when faxed and confirmed.

TO CONTRACTOR:

TO TOWN:

Town Manager
Town of Warren
514 Main Street
Warren, RI 02885

ARTICLE XVI: AGREEMENT BINDING

This Contract shall bind the heirs, executors, administrators, successors and assigns of the respective parties hereto.

ARTICLE XVII: GOVERNING LAW

The laws of the State of Rhode Island will govern the validity of this Contract, its interpretation and performance.

ARTICLE XVIII: PREVAILING WAGE RATE

The CONTRACTOR agrees to comply with the provisions of the Rhode Island Prevailing Wage Act and all corresponding rules and regulations. The CONTRACTOR shall pay all workers employed in the performance of this Contract the prevailing wages determined pursuant to the above cited law.

ARTICLE XIX: APPLICABLE LAWS AND SAFETY REGULATIONS

- a. Whereas a portion of this Contract is to be paid with federal funds, CONTRACTOR shall comply with all applicable provisions of federal law and regulations, including without limitation the Federal Aid Highway Act, Davis-Bacon Act, and Title VI of the Civil Rights Act of 1964 as amended and supplemented, and required provisions for federal aid contracts as provided in Chapters 85, 86 and 88 of the Public Laws of Rhode Island of 1960.
- b. CONTRACTOR and all of its subcontractors and representatives shall comply with all pertinent laws, statutes, ordinances and regulations, whether federal, state or local.
- c. In accordance with generally accepted practices, CONTRACTOR shall be solely and completely responsible for conditions in, on and near the job site, including the safety of all persons and property affected in any way by its operations, during performance of the WORK. This requirement will apply continuously 24 hours per day, seven days per week and shall not be limited to normal working hours. The CONTRACTOR shall be solely responsible for the construction means, methods, techniques, sequences or procedures necessary for performing, superintending or coordinating all portions of the WORK and any health and safety precautions required by any regulatory agency.

d. The duty of the OWNER or its authorized representative to conduct a review of CONTRACTOR's performance does not include review of the adequacy of its safety measures in on and near the job site.

ARTICLE XX: MAINTENANCE AND INSPECTION OF RECORDS

a. CONTRACTOR and all subcontractors shall maintain their books, records, financial documents and all other financial records relevant to the PROJECT pursuant to this Contract in accordance with generally accepted accounting practices.

b. OWNER or any of its duly authorized representatives shall have access to all books, records, papers and documents relevant to the PROJECT maintained by the CONTRACTOR and all subcontractors for the purpose of making audit examinations, excerpts and transcriptions. CONTRACTOR and all subcontractors shall preserve and maintain such records during PROJECT construction and for a minimum of three years after final payment by the Town.

c. CONTRACTOR's facilities and records shall be subject at all reasonable times to inspection and audit by the OWNER and its duly authorized representatives during the period of performance of this Contract and for three years thereafter.

ARTICLE XXI: AMENDMENTS TO CONTRACT

This Contract may be amended only by a document in writing signed by CONTRACTOR and OWNER, which amendment shall be executed as was the original Contract and appended hereto.

ARTICLE XXII: GENERAL PROVISIONS

a. Section headings in this Agreement are included herein for the convenience of reference only and do not and shall not constitute a part of the Agreement or serve any other purpose.

b. This Agreement represents the entire and integrated Agreement between the OWNER and CONTRACTOR and supersedes any and all other prior negotiations, representations, or agreements, either written or oral.

c. If any provision, paragraph, sentence, clause or word in this Agreement is held invalid or unenforceable by a court of competent jurisdiction, it is the intent of the parties that all other provisions, paragraphs, sentences, clauses or words of this Agreement shall be continued to remain in full force and effect and binding on the parties.

d. In any Contract where federal funding is involved, CONTRACTOR shall comply with the following clauses, incorporated herein by reference, and shall further include the provisions of this section in every subcontract and purchase order so that each provision will be binding upon each subcontractor or supplier.

1. The Equal Opportunity Clause of 41 CFR 60-1.4 (the CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin.)

2. The Equal Opportunity Clause of 41 CFR 60-250.5 (the CONTRACTOR will not discriminate against any employee or applicant for employment because he or she is a special disabled veteran or a veteran of the Vietnam Era in regard to any position for which the employee or applicant for employment is qualified.)

3. The Equal Opportunity Clause of 41 CFR 60-741.5 (the CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental disability in regard to any position for which the employee or applicant for employment is qualified.)

4. The Reporting Requirement Clause of 41 CFR 61-250.10 (requiring the filing of the VETS-100 form.)

IN WITNESS WHEREOF, the parties have executed this Agreement on the date first set forth above:

FOR CONTRACTOR:

FOR TOWN OF WARREN:

By: _____

By: _____

Name: _____

Name: David Frerichs

Title: _____

Title: Council President

Address: _____

Address: 514 Main Street

Warren RI 02885

Telephone: _____

Telephone: (401) 245-7554

Federal Tax ID: _____

SCHEDULE A: LIQUIDATED DAMAGES

The following is the schedule of liquidated damages for each day of overrun of contract time:

<u>Original Contract Amount</u>		<u>Liquidated Damages</u>
FROM MORE	TO AND	PER CALENDAR
<u>THAN</u>	<u>INCLUDING</u>	<u>DAY</u>
\$ 0	\$ 25,000	\$100
25,000	50,000	175
50,000	100,000	250
100,000	500,000	350
500,000	1,000,000	500
1,000,000		750

Bid Specification

Town-Wide VoIP Communications System

Inclusive of VoIP Radio Console and VoIP Telephone System

Optionals – Town-Wide NVR system, Town-Wide Wireless Point-to-Point IP Network

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1.0 Scope

This specification defines minimum requirements for the equipment and operational requirements for a Voice over Internet Protocol (VoIP) based dispatch console system. The system shall be capable of supporting multiple Dispatcher console positions sharing both voice communications (radio and telephony) and remote monitoring/control resources. The preferred system will be capable of expanding to a minimum of 100 Operator Positions and one-thousand voice resources (endpoints).

All Equipment shall be capable of interoperating over an Enterprise Ethernet based system. There will be a town wide IP phone system, security system install to be controlled by the new dispatch console. In addition a micro wave network initiative is included under Optional B; items included in this RFP must be able to integrate with the VoIP dispatch console system and the VoIP system. All remote applications Console, Phone and Cameras will run over a wide area net.

2.0 System Capacity

The system design shall be capable of interfacing up to X Operator Positions and shall be equipped with Y Operator Positions. The system shall scale to interface with up to X radio and/or telephone endpoints and shall be provided with X radio control endpoints, Y telephone endpoints and Z auxiliary inputs and outputs. Each operator shall be equipped to access any or all endpoints. Radio system details are included in this document.

3.0 System Architecture

The system shall be divided into three major components: Operator Position Consoles, System Gateways, and Endpoints, interconnected with industry-standard Ethernet infrastructure. No loss of functionality shall be suffered due to separation of components. A hybrid TDM-IP system requiring proprietary back-room equipment is not acceptable. All system elements shall be fully configurable via an Administration software application over a network connection, whether located on the local network or over a VPN.

The system shall support a centralized configuration database configured with dedicated Administration software. Configuration changes must be “pushed” to the Operator console positions over the network and take effect immediately without restarting system elements.

Each Operator Position shall be supplied with a separate subsystem to perform audio processing. A PC based console utilizing an internal sound card is not an acceptable solution due to limited peripheral support, inconsistent audio performance, and long-term compatibility issues.

System Gateways shall be based on non-proprietary hardware shall be software based, and inherently redundant. They shall manage the endpoints and support multiple technologies, both open and proprietary.

Endpoints are a combination of Vendor and third-party devices; typically radio and telephony resources. The proposed system shall be flexible and support technologies from many companies.

3.1 Console Positions

Each console position (“console”) shall consist of a PC, a dedicated device to process audio “workstation controller”, and a 19” LCD touch or non-touch monitor as detailed by the requirements of this specification. A mouse or trackball operator interface shall be optionally available. Each console shall be identical in terms of physical equipment regardless of use or designation. Any console shall be capable of functioning as a configuration position with the addition of a provided keyboard and Administrative software. A keyboard shall not be required to operate the console.

To ensure proper audio quality, PC soundcard based Operator Position equipment shall not be acceptable. A dedicated workstation controller shall be provided.

Console Software shall operate with Windows XP Professional or Windows 7 PCs. The Console position equipment shall connect to the local Gateway via 100BaseT Ethernet to access endpoints or other consoles; T1, E1, or other non-Ethernet based connectivity is not acceptable.

3.1.1 Console Position Audio processing

The workstation controller shall provide “transcoding” between different audio CODECs. Multiple CODECs must be provided with the system, (G.711, G.729a, G.726, etc.) and provide additional audio mixing for the console “patch” function. Up to five (5) patches per console must operate simultaneously.

3.1.2 LCD Monitor

All LCD touch monitors shall be identical and shall consist of an SVGA or better resolution color video display with a touch overlay. All LCD shall utilize USB connections to the Operator Position PC.

3.1.3 Workstation Controller

The workstation controller shall provide the operator audio, PC interface, all control interfacing for footswitch, headsets, desk microphone, and speaker audio. The workstation controller must be configurable to support interfaces for select receive, up to nine unselect receives, a maximum of four headset jack boxes/ Desk Microphones and a single footswitch. Audio port assignment must be software configurable. All control and level settings must be digitally set; potentiometers are not acceptable.

3.1.4 Workstation Controller Features

Connectors located on the rear of the unit shall provide for headset jack boxes, single footswitches, select and unselect speakers and connection of four auxiliary control relays. All peripheral device connections shall be made via standard Ethernet patch cables utilizing RJ-45 connectors for easy replacement. A protected front-panel mounted power switch shall be provided along with a LED to provide power status indication. The controller shall be configurable for placement on the desktop, or mounted out of the way to conserve valuable workspace. Under-desk mounting kits shall be available as well as brackets for rack mounting in standard 19” racks.

3.1.5 Operator Interface

Each workstation controller shall provide an interface for the following operator control devices:

- PTT Footswitch (single pedal)
- Desktop microphone w/PTT
- Headset w/PTT
- Handset w/PTT
- Jack box with presence sense
- Touchscreen, Mouse and/or trackball

3.1.6 Operator Position Equipment

Each console position shall consist of software running on a Windows XP Professional or Windows 7 PC. The Console Media Workstation shall provide the peripheral connections, digital audio mixing, and an interface to the Console Software running on a PC via Ethernet.

The workstation shall be capable of receiving/transmitting, encoding/decoding all audio via Ethernet based Internet Protocol packets and capable of supporting multiple compression algorithms. The console can easily be programmed to include system control buttons, audio level controls, a VU meter, and paging encoder keypad.

Each position will include a 19" flat screen LCD Touchscreen monitor. The monitor will include a graphical representation of channel, menu, and system resource icons that can be activated by touch.

Console, CPS and Gateway shall run on a standard PC under Windows XP Professional (Service Pack 3) or Windows 7 operating systems. As a minimum, the PC equipment shall be as follows:

- Processor:
 - Console: 2.8 GHz Core2 Processor or better
 - Gateway: 3.0 GHz Core2 Quad Processor or better
- 4 GB RAM, minimum
- Hard Drive:
 - Console: 80GB Hard Disk Space, minimum (160GB Preferable)
 - Gateway: 160GB SATA 7200 RPM Hard Disk, Raid 1 configured (single Solid State Drive acceptable option)
- 1280 x 1024 or better Video
- DVD/CD-ROM Drive
- One built-in Serial Port (External USB to Serial converters not acceptable)
- Four USB Ports, minimum
- One 100MB/s Ethernet Port

3.1.7 Headset Jack Box

Each console shall be supplied with a jack box equipped for interface with an industry standard PJ 327 dual tip, ring, & sleeve plug. The jack box shall be capable of remote location of up to fifty (50) feet from the associated console. Each workstation shall be capable of supporting up to four (4) simultaneous jack box connections on a per console basis.

3.1.8 Instant Recall Recording (IRR)

Each console position shall be supplied with an integrated recall recorder capable of recording receive audio for all active (unselect & select states) channels monitored at a given operator's console position. The IRR display shall provide Date/time stamp for each call, channel identification and ANI, call status (emergency or normal) and state of channel when call received (Select, UnSelect 1-9).

To maximize screen efficiency and real estate, the Instant Recall Recorder operator controls shall be incorporated into the Call Activity History display. To conserve console position space, no additional hardware to support IRR is permitted. The operator shall have at a minimum, the ability to select a call from the history window, fast forward and reverse through a call, pause a call, and advance to the next or previous instance of activity on a line.

3.2 System Gateway

The system shall be provided with redundant PC-based Gateways which interface to all system resources on an IP basis. The Gateways must be based on non-proprietary PC hardware and support automatic fail-over. Vendor shall state whether the Gateway PC equipment may be supplied by customer.

The Gateway(s) shall communicate and arbitrate control to all shared system resources, including radios (base stations, talk groups, control stations, etc.), telephone extensions, and Remote monitoring and control devices (Aux I/O). The Gateway will perform all conversion functions to open and proprietary radio and telephone protocols that may be required. A plug-in driver architecture shall be provided to support new types of resources in the future without changing hardware. All Gateway features shall be software based; no special or proprietary hardware shall be required. The Gateway shall contain all the software necessary to interface the external endpoint devices directly through the Enterprise network.

The major functions of the Gateway shall be to allow interfacing to the existing radios, decoding and displaying unit ID features (if available), as well as indicate and clear emergency alarms. Gateways will also support SIP based telephony integration with IP PBX's and support Caller ID. System must be capable of supporting P25 functionality, being compliant with the P25 CSSI standard. Vendors must specify the P25 features supported by their system. Gateways shall be capable of supporting additional third party trunking interfaces and other future radio or external communication device systems.

The Gateway shall communicate to all endpoints via unicast protocols. Unicast eliminates the need for multicast traffic to traverse the network. All Operator Positions shall be capable of communicating to the Gateway via Multicast. The Gateway shall arbitrate access to endpoints so multiple consoles have access to common endpoints.

The Gateway shall be configured and managed via a built-in web server with administrative log-in protection. All updates and modifications shall take effect immediately after editing. Rebooting the Gateway to enable a configuration change is unacceptable.

3.2.1 Gateway Interfaces

To ensure maximum future flexibility in choice of radios and telephones, and avoid proprietary vendor "lock-in", the Gateway must at minimum support the following technologies. The bidder shall provide a list of features supported for each technology; at minimum the "Advanced Radio Features" list must be supported.

- P25 Conventional Radios via the P25 DFSI standard (TIA-102.BAHA); Exclusive use of proprietary protocols will not be acceptable.
- P25 Trunked Radio systems via the P25 CSSI standard (TIA-102.BACA); Exclusive use of proprietary protocols will not be acceptable.
- MOTOTRBO Conventional radios (IP Site Connect) via direct IP connectivity to the Repeaters; control station interfaces are not acceptable.
- MOTOTRBO Trunked radios (Connect-Plus) via direct IP connectivity to the system controller; control station interfaces are not acceptable.
- iDEN/NEXTEL radios
- TaitNET MPT1327 Trunked Radio systems
- TaitNET DMR Trunked Radio systems
- Conventional Tone-keyed and DC-keyed Radios via remote audio circuit
- Conventional Radio via local control
- Session Initiation Protocol (SIP) telephony direct to Cisco, Avaya, and third-party IP-PBXs
- FXO and T1 telephony

3.2.2 Gateway Redundancy

The Gateway shall be proposed in a redundant configuration with automatic failover capability to ensure continuous uptime. Failover capability must provide a highly resilient system design that can continue to operate in numerous disaster scenarios. Such redundant capability must ensure that all endpoints continue to be available for uninterrupted control from all console positions.

3.3 Radio Controller

The bidder shall propose a solid-state embedded RoIP (Radio over Internet Protocol) controller that interfaces non-VoIP radio equipment to an IP network. PC based radio controllers are non-acceptable due to security and maintenance liabilities. The radio controller shall perform analog-to-digital conversion of the audio as well as remote monitoring and control. The device shall work in conjunction with the Gateway to provide interoperability with radios from different manufacturers.

The RoIP Radio Controller shall be capable of remote controlling base stations in 2-wire or 4-wire connection formats over an audio circuit. Control shall include programmable EIA Tone, local or E&M Control. DC keying shall be an option. Analog paging tones, including custom formats, shall be generated via the Radio Controller and not by the console position or Gateway. All standard tone paging formats shall be available. The paging tones shall be configurable through the System Administration software.

3.3.1 Radio Controller Features

The Radio Controller shall communicate to the Gateway via standard LAN/WAN equipment.

The endpoint shall be equipped for dual port operation. Each port's interface shall be capable of controlling a "direct connected" local radio or a tone remote controlled radio (locally or over a telephony circuit). In addition, each radio interface shall also be equipped with a serial data port to support open and proprietary radio-specific protocols.

When interfacing a radio, the Radio Controller shall perform the following functions under software control:

- Interface analog audio to/from the radio
- Convert audio to/from RoIP supporting a minimum of 6 CODEC choices to allow optimization of bandwidth use.
- Support an audio delay to avoid clipping of transmissions
- Decode DTMF digits
- Generating tones for transmission by the radio, either as an answerback event or upon a command from the dispatcher
- Detect a carrier operated relay (COR) signal from the radio
- Provide push-to-talk (PTT) control to the transmitter
- Select a frequency of the transmitter, if the station supports this function
- Provide LED indications of TX and RX status as well as network status
- Support serial connectivity for control/status of radio technologies requiring such an interface
- Provide sharable remote Aux I/O connections

3.4 Integrated Telephony Capability

The proposed system shall provide integrated telephone capabilities at the Dispatch console. This includes support for both E911 headset sharing and Administrative circuits.

Support for Session Initiation Protocol (SIP) for connection to VoIP telephony devices is required for Administrative telephony functions. Operator Consoles shall be capable of displaying pads on the user interface that map to telephony extensions. Operator consoles shall treat telephone extensions similarly to radios...a console may have multiple line appearances on its screen, and allow multiple phone calls to be active simultaneously. Calls may be active, put on hold and patched to other phone lines and/or radio endpoints. Extension status shall be visible to all consoles. Consoles shall not be restricted to one “phone patch”.

The Gateway shall register each endpoint (extension) directly with it’s corresponding SIP proxy server and provide connectivity to any or all the consoles. Each endpoint may reside on different IP-telephony devices and the Gateway shall support multiple proxy servers.

The Operator Console shall include a contact database with a minimum capacity of 8000 entries. Contacts may be members of Groups, which shall be available to offer quick access to related contacts. Multiple phone number entries shall be supported on a per contact basis. Alpha-numeric search strings shall be supported enabling rapid identification within the contact database.

Telephony functions shall include recall dial tone, call initiate, caller ID display (name & number) in the call queue, transmit caller ID, and patch status. Definable Telephone Hunt Groups shall be supported on a per-system, per-console and per-contact basis.

The system shall support a NENA compatible E911 headset sharing interface on a per-console position basis. This shall consist of a dedicated 4-W 600 ohm audio connection and a signaling input to the console to indicate the port is active. The console position shall automatically enable the E911 audio to the operator headset and permit simultaneous radio operation.

3.5 Advanced Trunked Radio Integration

The provided solution shall be capable of integrating radio functionality necessary to interface with conventional analog and digital trunked radio systems. As these system required an expanded feature set and respective User Interface control, the proposed product must support at a minimum; group and individual calls, Emergency Display and Clear, Call Alerting, Call Progress Tones, Radio ID Display (when available), and the ability to change talk groups. If available, subscriber unit Stun/Revive is desirable.

All advanced radio endpoints shall be capable of being patched with both conventional radio and telephone endpoints with no additional impact on the system or extra Operator functions required.

3.6 Centralized Administration

The system must provide a single Administration software application that provides for remote configuration and diagnostics for consoles, Gateways, and endpoints. The Administration software must support live “push” configuration changes from a centralized database to any or all Operator positions. Systems that require individual local Operator Position configurations shall not be acceptable.

The Administration software must permit user interface changes to be created and tested in an off-line state. The off-line testing shall include the screen layouts/navigation, graphical elements, browser addressing, and contact groupings to eliminate the risk of errors before distributing the changes. Once the reviewed designs are approved, the new configuration can be “pushed” to the live consoles..

Every screen element, from graphical backgrounds to pad sizes, colors, and fonts, must be configurable by the Administration software. It shall be easy to design, maintain, and deploy new console screens using the software.

3.7 Logging/Archival Recorder Outputs

The proposed system shall support recording of console and/or endpoints. Both Analog and IP recorders shall be supported.

Consoles shall be configurable to output the following audio sources:

- Select and Microphone audio, mixed in one channel
- Unselect audio
- Telephony audio
- Radio audio

These audio sources shall be available in either traditional two-wire, 600-ohm analog output on the rear of the console or in standard streaming Real Time Protocol (RTP) format. For IP recording, the console shall transcode the IP audio into a user-selectable CODEC format. A minimum of 6 CODECs shall be available to optimize bandwidth.

The proposed Radio Controller shall have an option to present an analog recording output on the second radio port. Alternatively radio (and any endpoint) audio shall be presented to up to 4 IP audio recorders by the System Gateway(s) using “Active Packet Forwarding.” The Gateway shall be configurable to re-transmit both sides of the audio conversation to a recorder by allocating specific ports by which the recorder will capture all audio packets for specified audio channels..

3.8 Diagnostics

The proposed system shall include easy to use diagnostics for each component to assist in troubleshooting problems. Each of these components must be accessible via a standard Web browser, or through the Administration Software. Detailed Log files shall be stored on the Operator Positions PC’s to ensure the ability to easily pinpoint issues.

A Diagnostic Logger shall be available to centrally correlate the alarm and/or anomaly events within the proposed system. The Diagnostic Logger shall denote the Date/Time of an event, the Source component of the alarm or event, the alarm type, such as “ALARM” or “EVENT”, display the status of the event and include the severity of each such as Major or Minor for Alarms and Low or High for System event anomalies.

4.0 Ethernet Network – Bandwidth - QOS

VoIP Consoles shall be capable of communication across an Enterprise WAN or private allocated network dedicated to the console system. IP network connectivity shall be at the 100 Mb/s switched Ethernet capacities to interconnect all of the elements, from the consoles, to the Gateways, to the VoIP endpoints. LAN segments shall support multicast. In the event remote consoles are required, the WAN shall also be capable of supporting multicast network traffic.

The system shall support a QoS technique called Diffserv Code Point (DSCP). Packets are marked using the Type of Service (ToS) field in the packet header. The network infrastructure shall be compatible and configured to recognize DSCP marked packets and act on them accordingly to ensure the proper QoS.

Each Operator Console position will support two Ethernet connections; one for the PC and one for the workstation controller. Gateways and Endpoint devices shall each require one Ethernet port. Note: a dual port endpoint shall only require one Ethernet port.

The Gateways shall communicate to all endpoints via unicast. As a general rule for capacity planning, network traffic capacity will be calculated by adding 16kbps to the

Codec requirements (which range from 64kbs for G.711 to 8kbs for G.729) for the RTP and UDP headers for audio transport. For half-duplex devices, such as most radio endpoints, only one-way audio shall be counted. Silence suppression will be taken into account. If the radio endpoints are all muted, then little or no data shall be transmitted.

A typical endpoint to Gateway IP connection for one radio shall consume a minimum of 24kbps to a maximum of 80kbps for audio transmission during activity; when the radio is squelched “silence suppression” shall be used. (Note: All endpoint traffic shall be unicast, to reduce multicast messaging on the WAN.)

For efficiency on the LAN, the Gateway shall forward the unicast packets from the endpoint and other endpoints via Multicast to the Operator Consoles. Whenever an endpoint is active and transmitting its audio to the Gateway, it is automatically forwarded regardless if one or fifty consoles have that endpoint selected or monitored.

Latency between network based devices shall be controlled through adjustable buffers. The jitter buffer settings must be user-tuned on a per-device basis; both the endpoint and operator software must support this capability. Proposed solutions must support variable packet sizes down to 20ms, allowing the buffer to be set at 60ms. Full Duplex audio shall not exceed >150ms end-to-end latency, half-duplex audio communications due to the nature of simplex operation shall achieve < 300ms or lower.

5.0 General Mechanical Requirements

5.1 Connectors

All connectors shall employ a means of locking which shall prevent accidental separation. All signal connector contacts shall be gold plated. All network connections shall be of the RJ45 standard utilizing gold-plated connectors for reliability.

5.2 Printed Circuit Boards

All printed circuit assemblies shall be utilize the latest surface-mount technologies; obsolete through-hole technology shall not be used. All printed circuit boards shall be mounted in dedicated enclosures to ensure protection from ESD. The proposed solution shall support a completely distributed architecture; systems using card cages or backplane type interfaces are not acceptable. Specialized handling requirements, such as use of ESD wrist-straps or grounding/umbilical cables, is not acceptable.

5.3 Components

All components used in the system shall be new. All electrical components shall be standard, commercially available, unselected parts. All components must be capable of being distributed across an Ethernet network and not be dependent on backplane technology for interconnect.

5.4 Cables

All interconnecting cabling shall utilize plug-in connectors at both ends to facilitate removal for maintenance. Solder operations shall not be required to disconnect/reconnect system cabling. Connections between System devices and/or network interfaces shall be industry standard, utilizing commercially available off the shelf cabling such as; RS232 Serial cabling and CAT5/6 – RJ45 Cables/connectors. Proprietary cabling, exclusive of radio interfaces, shall not be acceptable.

5.5 Relays

Where employed, auxiliary relays used for control of external devices shall have a minimum contract rating of 1 Amp @ 250 VAC or 220 VDC with a maximum switching capacity of 62.5 VA, 60W for maximum reliability.

5.6 Workstation Controller

The workstation controller shall be configurable for desktop or 19-inch rack mount application. The color shall be black. Each workstation shall be capable of supporting up to ten (10) external amplified speakers with LED activity indicator and volume control. A power switch and readily accessible fuse holder shall be provided as well as the connectors for the operator control devices.

6.0 Electrical Requirements

All electronic equipment shall be solid state. Unless otherwise required, relays and electromechanical devices shall not be utilized. All audio adjustments shall be under software control. System audio adjustments shall be performed at the system maintenance terminal. Level potentiometers shall not be utilized except for the operator's speaker and headset jack box volume controls at the console.

6.1.1 Conventional Circuit Interface

Conventional communication resources connected to the Endpoints shall be interfaced via plug-in connections on a per radio resource basis. Each resource shall occupy one port in the Endpoint device. It shall be possible to provide for redundant control modules by paralleling two modules. Each module shall provide the audio to digital interface, digital signal processing and signal interface to the attached external control line.

6.1.2 Supported Resources

RADIO RESOURCES - shall employ M-lead, contact closure, or industry standard tone remote control for transmitter keying. All standard function tones and DTMF tones shall be available. Notch filter setup for 2400 and 2800 Hz. single tone keying shall also be available where specified. The system shall support a standard relay panel to disable or force vote a designated radio site.

TELEPHONE RESOURCES (PBX and PSTN) – (if required) shall employ DTMF dialing, loop start, with on/off hook supervision. Inbound signaling shall be 75-100 VAC, 20 HZ ringing. Interface modules shall be FCC Part 68 approved.

Endpoint modules shall be field replaceable without umbilical cords, power switching, or disturbance to the system, while the system is operating.

AUXILIARY INPUT/OUTPUT CONTROL – System shall be capable of IP-based remote controllable auxiliary inputs and outputs. The system shall scale to support over 1,000 IP accessible I/O connections in multiple locations across an Enterprise network. Outputs shall be “Form C”, configurable momentary or latched relays. Inputs shall be optically isolated and trigger on detection of voltage, ground, or a contact closure. The Inputs and Outputs shall be 19-inch rack mountable devices with 24 connections each and powered locally 12VDC.

6.1.3 Select Channel

The output of the select channel shall be available on a 600 ohm, 2 wire connection at the console position. The output of the select channel shall be capable of automatic muting when an external headset/handset is in use. The select channel shall be configurable to feed the headset/handset ear piece(s). A high-quality select speaker with a front panel volume

control, and LED activity indicator shall be provided. PC soundcard and speaker systems using L/R and Balance controls are not acceptable.

6.1.4 Unselect Channel

The output of the unselect channel speaker(s) amplifier shall be available on a 600 ohm, 2 wire connection at the console position. A high-quality unselect speaker with a front panel volume control, and LED activity indicator shall be provided. PC soundcard and speaker systems using L/R and Balance controls are not acceptable.

6.2 Cabinet

The Endpoint equipment shall be installed in 70" high 35RU, locking cabinets. The final determination of number of cabinets and location are to be determined by the final configuration. The endpoints shall be mounted in 19" EIA rack mount shelves and shall include appropriate 12VDC power supplies. Each shelf shall contain a maximum of 4 Endpoint devices and occupy no more than 3RU of rack space. The cabinet shall include ventilation grills and space for wiring to be installed internally to the cabinet.

6.3 Conventional Circuit Interface

6.3.1 General

Response Time, PTT:	50 milliseconds maximum
Response Time, Command:	500 milliseconds maximum

6.3.2 Receive

Line Input Impedance:	600 ohms (or 10K bridging in 4-wire)
Input Level Range:	-30 - +10 dBm, digitally adjusted
Compression Range:	Minimum 40 dB, < 3% THD (implemented with Digital Signal Processor)
Output Variation:	< 3 dB with 40 dB input variation
Compression Attack Time:	.01 - 2.31 seconds, digitally adjusted
Compression Release:	.01 - 2.31 seconds, digitally adjusted
Frequency Response:	300 - 3400 Hz

6.3.3 Transmit

Line Output Source:	600 ohms balanced
Transmit Level Range:	-30 - +10 dBm digitally adjusted

6.3.4 Signaling

Negative Signaling Voltage (VEE):	-21 to -52 VDC (external)
Current:	60 ma per card (internally limited)
Positive Signaling Voltage (VDD):	+12 VDC (internal)
E-lead Range:	+12 to - 52 VDC, owner selectable
M-lead Relay:	Dry contact, VEE, or ground owner selectable
M-lead Pin Out:	Form "C"

Auxiliary Relay:	Form "C"; 1 per module
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6.3.5 Logging Recorder Output

Source Impedance:	600 ohms balanced
Level Range:	-30 - +10 dBm, digitally adjusted
Keying Tone Filtering:	Digitally selectable, digitally tuned
Recorder Source:	Receive only, transmit only, or composite; digitally selectable

6.3.6 Radio Application

Receive Notch Filter:	Digitally tuned
Notch Depth:	55 dB minimum
Notch Bandwidth:	+/- 3% maximum at -3 dB
Tone Keying Frequencies:	Guard Tone 2175 Hz Function Tone, selectable all industry standard
Tone Accuracy:	+/- 1 Hz
Tone Distortion:	1% maximum
Levels (Relative to Voice):	High Guard Tone - 0 dB; Low Guard Tone -20 or -30 dB software selectable; Function Tone -10 dB
Tone Keying Timing:	High Guard - 120 ms; Function Tone - 35 ms Low Guard tone - Continuous, PTT on only

6.3.7 PABX Application

DTMF Tone Frequencies:	697, 770, 852, 941, 1209 1336, 1477 and 1633 Hz
DTMF Tone Accuracy:	+/- .2%
DTMF Tone Distortion:	1% maximum
DTMF Decode Twist:	+/- 6 dB
DTMF Detect Timing:	40 ms
DTMF Inter-digit Timing:	40 ms
DTMF Decode Tolerance:	+/-1.5%
2W Loop Resistance:	150 ohms
Loop Current:	8-100 ma
Flash Timing:	500 ms typical, software selectable
Disconnect Sense:	Loop Loss
Inbound Signaling:	75 to 135 VAC 20-30 Hz, or E-Lead
Outbound Signaling:	Loop closure, ground start, or M-Lead

6.3.8 Paging System

Tone:	300 Hz - 3400 Hz
Tone Composition:	Paging industry standard
Formats:	Motorola 2 + 2, Quick Call 1, Series Y, Motorola 1 + 1, Quick Call 2 (General, Modified & Extended), Reach Two Tone, Reach Single Tone, Avcall 2+2 (Selcal), General Electric

6.4 Operator Audio

6.4.1 Select and Unselect Channels

Line Input Impedance:	600 Ohms Balanced
Receive Level Range:	-20 dBm to +10 dBm
Power Output:	Adjustable to 5 RMS watts into speaker

6.4.2 Transmit Channel

Transmit Level Range:	-20 to +10 dBm
Headset Mic Sensitivity:	Adjustable to -20 dBm
Turret Mic Sensitivity:	Adjustable to 60 uVolts
Side Tone:	Adjustable

6.4.3 Auxiliary Control

Auxiliary Relays:	Four per workstation/External IP Panels
Relay Pin out:	Form "C"
Relay Operation:	Momentary/Latched; Configurable

6.5 System Performance

Frequency Response:	+5 to -2.0 dB; 300 - 3400 Hz (1 kHz Reference)
Distortion:	1.5 % Max from any line input to any line output
Hum & Noise:	>64 dB below output at +10 dBm (-55 dBm maximum)
Crosstalk:	<-60 dB

6.6 Primary Power Requirements

Power Input:	92 to 132 VAC, 176 to 245 VAC
Frequency:	50-60 Hz
Power Consumption:	
a) Per Workstation:	250 VA (maximum) 150 VA (typical)
b) Per Common Central Equipment Cabinet:	1350 VA (maximum) 675 VA (typical)

6.7 Environmental Requirements

Operating Temperature Range:	10 - +50 degrees C
Storage Temperature Range:	0 - +60 degrees C
Relative Humidity:	8 - 80% @ +40 degrees C

7.0 Operation

Each console shall be configurable to display and/or access multiple unique user screens. These screens shall present the console operator with the circuits and functions assigned for the current operation in the form of "electronic push buttons" labeled with names and status colors. A screen shall be programmable to display any combination of circuit or function

pads, screen change short cut buttons, pop-up windows, call queues, activity history or a variety of other functions at any location on a screen. Pad size, colors and text size and fonts shall be programmable on a per object basis. Background highlights, images and selectable colors shall be available to accent application workspace groupings.

Screens shall be comprised of a combination of CIRCUIT PADS and FUNCTION PADS. Circuit pads shall display the authorized circuits available to the operator at a particular workstation. Each circuit pad shall support a minimum of two lines of text for endpoint naming to identify the circuit pad. Circuit status shall be shown in a separate line text field. Status words shall be SELECT, UnSelect 1-9, PATCH 1-5, MONITOR, HOLD, BUSY and MUTE. CALL shall display flashing. The circuit pad color shall be used to identify circuit status condition, so overall console status can be determined at a glance. There shall be different channel status colors to identify the following conditions; SELECT, UNSELECT 1-9, SIMUL-SELECT, PATCH 1-5, MONITOR, HOLD and MUTE.

A location configurable channel activity or VOX indicator window shall be present to aid in visual identification of active audio on a specific channel. The channel activity window background, normally white, shall be yellow when Receive Audio is present and shall be red during active TRANSMIT. The proposed system shall allow configurable icons to be added to circuit pads enabling visual call indication to associate the call with the corresponding circuit.

The system shall support the display of multiple programmable 12/24 hour clocks, a Master PTT status bar, and VU meter.

7.1 Protocol Gateway Support

The system shall include a PC based software product that shall translate specific communication protocols, both open and proprietary, to a single system interface protocol used to communicate with the operator consoles or other Gateways over a LAN/WAN topology. This Gateway shall be extensible allowing for the integration of new protocol drivers as they become available.

The Protocol Gateway shall be accessible via a web based browser or through the Common Project Management tool.

Protocol Gateways shall be configurable to support redundancy, fail-over and load-sharing either locally in a LAN or distributed across an Enterprise WAN. The proposed system shall allow for expansion supporting the addition of Protocol Gateways as endpoint capacity requires.

The Protocol Gateway shall also allow for the abstraction of the console system interface from third party interface drivers.

7.1.1 iDEN Support

The system shall interface to the RALP protocol enabling access to the iDEN network cell phones. Two modes of operation shall be provided; single call and group call. iDEN call alerts shall also be supported. The User Interface control shall enable an Operator to easily initiate Group and Individual Calls, visually identify on the circuit pad the current Group selected and display radio ID for inbound calls from the field.

7.1.2 P25 Support

The system shall support integration to P25 radio interfaces utilizing the APCO approved DFSI (TIA-102.BAHA) and CSSI (TIA-102.BACA) standards. Exclusive use of proprietary protocols will not be acceptable.

7.1.3 MOTOTRBO Support

The system shall interface via direct wireline Ethernet IP connectivity into the respective MOTOTRBO Site Controller. Third party interfaces for conversion shall not be acceptable.

The proposed system must scale to support 100+ conventional channels and must support the minimum advanced Trunked radio feature set.

7.1.4 Future Trunked Radio Support

The proposed system shall be designed such that new protocols can be adapted without impacting existing operations.

7.1.5 Encrypted Audio Support

The proposed console system shall be capable of supporting industry standard encryption algorithms, including AES and DES when required by the deployed radio infrastructure.

7.2 NENA 911 Support

The system shall interface to the National Emergency Number Association (NENA) 911 emergency phone system by providing the capability to “share” the headset of a console position with an external Emergency 911 phone system. When an operator answers an emergency call on the Console system, the system will automatically connect the incoming and outgoing audio to the phone system.

7.3 Emergency Call Indications

The system shall provide emergency call indications to the operator and initiate special handling of emergency calls. The call indication shall flash in the line pad. The system shall also produce an audible alert, such as a beep or ring, alerting the user to a pending call. The lines on the workstation shall be configured with default call indications; however, the call indications shall be dynamically changed using the SHOW RING pad.

7.4 Voting Indication and Control

The system shall be capable of interfacing to the installed Voting Comparator system. (if available) through the use of Auxiliary I/O. The interface shall allow for control as follows:

- Force Vote a receiver
- Disable a receiver
- Indicate which receiver is voted
- Indicate a failed voter/line/receiver
- Indicate RECEIVE status on a receiver

8.0 Circuit Selection

8.1 Radio Circuit

Radio circuit selection shall be accomplished by touching/clicking the desired RADIO circuit pad. The pad background color shall change to the “User” defined Select color giving a visual indication of a Select channel. Receive audio shall be presented to the operator via the Select speaker. The operator's microphone audio shall be presented to the transmitter whenever the PTT switch is enabled by the operator.

The INDIVIDUAL INSTANT TRANSMIT pad (one per radio channel) shall provide the workstation operator with an integrated Instant Transmit capability for an associated radio channel. When placed on the screen, directly touching/clicking the instant transmit pad shall place the associated radio channel in the INSTANT TRANSMIT mode. If another channel was in the Select mode, it will remain selected, but not enter the transmit mode. To select the radio channel, the workstation operator shall touch/click the desired radio channel pad.

The Master PTT function pad (one per screen) shall provide the workstation operator with a Select Channel Transmit function while conserving screen workspace. When placed on the screen, directly touching/clicking the Master PTT pad shall place the Select radio channel in the TRANSMIT mode. To select a radio channel, the workstation operator shall touch/click the desired radio channel pad. If another channel was in the select mode, it shall toggle to its predefined default state, but not enter the transmit mode.

Each radio circuit pad shall be configurable to contain a relative volume indicator for that circuit and can be located at the top or bottom of the respective circuit pad. The size of the bar shall provide a visual indication of the volume level relative to other unselected radio channels. Volume control shall be centralized to minimize screen clutter and shall allow individual control of the Select and UnSelect volume level of the chosen channel. Individual volume adjustments made at one console shall not affect the audio levels at other consoles.

To answer an incoming radio call, the operator shall only be required to touch/click the calling circuit pad. The circuit pad shall be configurable to display a visual call indication to associate the call with a circuit.

Radio circuit default states shall be configurable by the System Administrator. This shall allow a radio circuit to be assigned to an UnSelect speaker insuring all channels are available at system start up or after PC reboot.

8.2 Telephone Circuit

Outbound telephone call placement shall be accomplished by touching/clicking the desired telephone circuit pad. Upon selection, the Dial Screen shall automatically appear for the operator and dial tone will be provided from the attached line. From this screen, the operator shall be able to either manually dial the desired number or select an automatic dial pad from a Contact List to dial a number stored in memory. Manual selection of the DIAL SCREEN shall be made by touching/clicking the DIAL SCREEN function pad at any time. The DTMF tones shall be sent over any selected circuit.

In addition, Operators shall have the ability to initiate outbound calls by selecting a pre-defined "autodial" Contact Pad. Contact Pads shall be configurable to utilize a Line Hunt Group function eliminating the need for the Operator to seize a telephone circuit pad prior to selecting the contact pad.

Incoming telephone calls shall be audibly announced and the status word "CALL" shall be flashed in the associated telephone circuit pad. To answer a call, the operator shall only be required to touch/click the calling pad. In the event ANI is available on the incoming circuit, the caller ID should be displayed on the respective telephone circuit pad.

To facilitate easy identification of an inbound call on an important line, the Console shall be capable of assigning customizable ringtones to telephone circuits. Ringtones shall be standard audio file formats such as .wav files.

8.3 Intercom

Intercom selection to another operating position shall be initiated by touching/clicking a SIP Telephone line pad. The SIP Line pad shall automatically initiate a call to the desired operator position. The called party's SIP line pad shall flash the status word "CALL". When the called party desires to respond, the receiving operator shall touch/click his respective "CALL" line pad. The audio shall be rerouted to the select speaker and the return microphone channel shall be enabled as a full duplex audio path.

9.0 Workstation Screen Parameters

The following configurable Pad types and Operator functions shall be available in the system. The owner, through the use of a centralized common project management tool may incorporate any of these parameters into the workstation screen design according to his functional requirements. A single screen shall have the capacity to display any combination of circuit or function pads, at any location on a screen. Pad size, text fonts and size, pad colors, pad icons and so forth, shall be owner configurable. Owner configurable background highlights shall be supported utilizing different colors to accent application workspace grouping.

Tabbed modules shall be definable allowing easy access to grouped circuit and function pads when required. All tabbed backgrounds and the tabs themselves shall be administratively configurable for color, text font and size and the addition of icons when required.

Required pad and functions are listed below in alphabetical order followed by a brief description of the associated operation.

Action Pads

These pads when placed on the Operator screen shall provide a navigate feature enabling the dispatcher to switch screens or invoke a "Pop-up" screen with a single pad selection. These pads shall be configurable and shall contain the text necessary to identify the action to be taken.

Activity History

Each console position shall be capable of providing an activity history display. Activity History shall display the operator console's VOX activity to the dispatcher on a per line / per transmission basis. Filters shall be included enabling an operator to segregate Emergency Calls from regular calls and radio calls from telephone calls. The Activity History display shall provide a scroll function and allow the operator to search back n time to view call activity.

The Activity History retention period shall be configurable from 1 (one) minute to 24 (twenty-four) hours.

Alert Tones

These pads shall provide the control for generation of owner programmable alert tones. Each shall be owner programmable for frequency, duration, and level. When touched/clicked, the tone will be applied to all selected channels and will be indicated on the VU bar graph.

All Mute

This pad shall provide a timed mute function on all monitored channels. Mute time shall be owner configurable from 0 to 255 seconds. When active, the ALL MUTE function pad shall be flashed to alert the workstation operator of a mute condition. To cancel an ALL MUTE command, the operator shall retouch/reclick the function pad.

Auto Contacts

Auto Contact Pads shall allow the dispatcher to automatically dial or page a contact or group of contacts (for example, a pre-defined paging stack) by touching a pad on their screen. Auto Contact pads shall be configurable to utilize line Hunt Groups for when defined for telephone contacts and radio channel/frequency steering when configured for contact paging.

Aux Control

The system shall be capable of providing Form "C" contact closures accessible at each workstation to perform external control functions. Each Form "C" contact shall be titled in the system database, and programmed for latched or momentary function. Each Aux Control pad shall visually indicate a change in state when selected.

Browser Control

These pads, when directed to a specific IP address, website or local document, such as on-line Help manuals, streaming media, weather alerts, etc., shall invoke a screen within the Operator's display providing the pre-configured content. Configuration of the URL and/or content shall not be accessible to the dispatcher and will be administered by authorized personnel only. The Operator shall have the ability to close Browser screens when not in use.

Call Enable (Show Ring)

This pad shall enable an operator to modify the ring status of monitored endpoints.

Call Queue

The operator interface shall be capable of providing a pending call indication display or Call Queue.

Call Queue Display Area

This area shall display pending unanswered calls and shall place emergency calls in higher priority than regular calls. Call priority with each type of call (emergency or regular) shall be based on oldest call on top with subsequent pending calls listed below based on time received. The Operator shall be provided a scroll capability to easily navigate the Call Queue display. An Answer Call button shall be available to select a pending call within the queue for answering. The system shall allow for the automatic removal of unanswered calls from the call queue after a configurable length of time.

Contact Dialer

The Operator console shall be capable of displaying a Contact Dialer module for manual DTMF digit dialing. Contact Dialer appearance shall be administratively configurable to modify text font, text size and display colors. The Dialer shall be configurable to allow the display of contact lists as a pop-out option. Basic functions such as clear, back, flash and dial shall be available.

Contact Directory

The system shall provide a list of pre-defined contacts which can be configured for autodial utilizing the Line Hunt Group feature or manual line select and dial. The system shall be capable of displaying contacts either individually or in structured groups.

Contact Directory Search

The contact list shall be searchable by utilizing the alpha keypad. Selection of alpha characters from the keypad shall immediately reduce the selectable contacts. Continued entry of alpha characters shall further reduce the viewable contacts within the list. The characters entered shall be displayed in the alpha search display area. The operator shall then be able to select the desired contact to dial a preprogrammed telephone number over a selected line.

Dial Display Area

This area shall display the current number dialed.

Dial Screen (Shortcut)

This pad shall cause the Dial Screen to appear on the dispatch screen. From this screen manual DTMF dialing as well as contact autodial shall be performed. If a telephone line is selected to make an outbound call, the Dial Screen shall be owner configurable to display automatically without touching/clicking this pad.

Hook Flash

The Hook Flash pad shall perform a quick on hook/off hook action which the SIP PBX interprets to perform a specific function (for example, answer call waiting or call transfer).

Recall (Redial Last Number)

This pad shall cause the last number dialed to be redialed. The LAST NUMBER DIALED pad shall display the number.

CTCSS

This pad shall disable CTCSS allowing the dispatcher to eaves drop or listen in on a pre-configured CTCSS enabled radio channel without transmitting. This pad shall function as a toggle enabling and disabling the CTCSS function when selected.

Emergency Display Clear

This pad shall clear the emergency indications on all selected radio lines. It shall not change the emergency status of the line, only the indicators visible on the line. Talkgroups interfacing with Trident Passport Trunking shall not be affected by this pad.

Encryption Enable/Disable

For radio endpoints that require control of encrypted audio, the Encryption Enable/Disable pad shall cause a selected radio endpoint to activate/de-activate encryption algorithm's supported within the system.

Frequency Control

To minimize screen clutter, a centralized Frequency Select module will be displayed enabling an Operator to select any one of up to sixteen frequencies available on multiple transmit frequency radios. The Frequency Select module can be located on any or all screens and shall display the frequencies of the current Select channel. Upon selection of another radio channel, the Frequency Select module will automatically show the Select radio name and the available frequencies associated with that respective radio.

Frequency Alias tables shall be available to allow the naming of frequencies. There shall not be a limit to the number of Alias Table available and these tables can be assigned to more than one radio channel if so deemed appropriate.

Group Select

Touching/clicking these pads shall automatically place a preset group of channels into the Select mode and engages their PTT functions. If another channel was selected prior to touching/clicking a Group Select pad, it shall be de-selected, and not transmit during the period the Group Select is active. Releasing the Group Select pad shall remove the programmed group from Select mode and return them to their respective default UnSelect state.

Once selected, these groups can be placed into a simulselect mode, patched mode or UnSelect state. Each channel pad within the Group, as well as the Group Select pad itself, shall reflect the state upon which it is placed. As an example, if a predefined group of channels is Group Selected, then placed into Patch1, all pads shall assume the color and state of the Patch1 system setting.

Headset Monitor

This pad shall temporarily override the select speaker mute function, which is automatically enabled when a headset is inserted into the console jack box. Automatic select speaker muting shall also be permanently disabled by the owner on a per console basis by editing the system database.

Hold

Touching/clicking the HOLD pad shall place the selected telephone line in a "Hold" condition. While the line is on "Hold", receive audio shall not be presented to the operator and the status word HOLD shall be present on the channel pad. To reselect the line, the operator shall retouch/reclick the desired line pad.

Instant Recall Recording

As part of the Activity History display, Instant Recall shall be available to each operator position enabling playback of receive audio on a per console basis. Selection of a call entry shall automatically commence call playback on a pre-designated speaker.

Instant Transmit

These pads shall provide the workstation operator with an integrated Instant Transmit function for an associated radio channel. When placed on the screen, directly touching/clicking the channel pad shall place the associated radio channel in the INSTANT TRANSMIT mode. To select the radio channel, the workstation operator shall touch/click the desired radio channel pad.

Line Pad

These pads shall provide access to the circuits assigned to the console for the current shift in the form of "electronic push buttons". Each shall be labeled with names and status colors. The first two lines of text on a line pad shall identify the associated endpoint. The last line (seven characters) shall show the line status. Each pad shall be owner programmable to display visual call alerts, audible call alerts and the default line monitor status on a per console basis.

Mute

This function pad shall control the individual audio level of a given radio channel. If the radio channel is presently in a monitor condition, receive audio shall be presented to the workstation via the workstation unselect speaker, touching/clicking the MUTE function pad and then touching/clicking the radio channel pad shall change the channel to a MUTE condition. Likewise, if the radio channel is in the MUTE condition, repeating the action shall reverse the process and place the radio channel in a MONITOR condition.

Next Call

This function pad shall automatically select the next highest priority call pending in the call queue (radio and/or telephony). Call priority will be established by Emergency status and received aging.

Paging Dialer – A paging module shall be available for manual paging operations:

Add

This pad shall insert a selected page into the active page queue shown in the PAGE DISPLAY AREA.

Alpha/Page

This pad shall toggle between alpha and numeric text enabling manual entry of digits of the page code characters and/or numbers and will be shown in the PAGE DISPLAY AREA.

Backspace

This pad shall delete the last manually entered digit of the page code shown in the PAGE DISPLAY AREA.

Cancel

This pad shall cancel an active page while in progress. The PAGE DISPLAY AREA shall display the page cancel status.

Clear/Clear All

This pad shall clear the entire page code in case of operator error. The PAGE DISPLAY AREA shall display the page code.

(Page) Code Entry Pads

These pads shall allow the workstation operator to manually enter page codes. As keypad pads are touched/clicked, the numbers touched/clicked shall be displayed in the PAGE DISPLAY AREA.

Contact (Directory)

This pad shall display the Contact page directories. The Page Contact Directory shall allow the operator to scroll through defined Contacts and Groups if so configured. Use of the alpha text pads shall provide a means of searching the Contact Database.

(Page) Display Area

This area shall display the currently entered paging code as well as the previous entry.

(Page) Format Pad

This pad shall toggle and allow selection of the desired pager format when performing manual page entries. The actual displayed text shall indicate the format provided. The following industry standard paging codes shall be provided.

Paging Formats	
Format	Call Sequence
Motorola 2 + 2, Quick Call 1 (Series Y)	Individual Call Group Call
Motorola 1 + 1 Quick Call 2 (General) Quick Call 2 (Modified) Quick Call 2 (Extended)	Individual Call Tone & Voice Group Call Tone Only Battery Save
Reach Two Tone	Reach Slow Reach Fast Reach Group Call Two Tone
Reach Single Tone	Reach Single Tone Battery Save
Avcall 2 + 2 (SELCAL)	Unit Call
General Electric	GE Type 99
Plectron Single Tone Duotone Fast Duotone Slow Motorola	Individual Call
DTMF	Individual Call Group Call
5/6 Tone	Unit Call
Knox	Tone Only
Customized	Individual Call Group Call

Send

This pad shall confirm a correct operator entry and engage the pager unit to send the codes on the selected radio channel.

Recall

This pad shall resend the last page code initiated.

Remove

This pad shall remove the last page entered in the Page Display.

Patch 1-5

Touching/clicking a PATCH function pad shall add the selected channel to the patch conference. If no channel is selected, touching/clicking a patch function pad shall add the workstation operator to the patch conference. Touching/clicking a pad that is in a patch conference shall select the channel and remove it from the patch conference. Touching/clicking it twice shall disconnect the channel (select; then disconnect).

The default condition for Operator participation in a Patch shall be configurable as to whether the Operator is by default entered into the Patch upon selection or is not automatically entered upon Patch setup.

PTT (On-Screen)

This pad shall automatically invoke a “Push-to-talk” transmit action on the “Select” or “Simul Select” channels.

PTT Indicator

This graphic indicator shall display the PTT status of that specific console when the respective console is transmitting.

Release

This pad shall automatically disconnect the selected telephone line.

Repeat Enable/Disable

This pad, when selected, shall initiate a Repeater disable tone or message to be sent out to a respective endpoint radio capable of having its repeat function disabled. Touching/clicking the pad a second time will re-enable the Repeat function within the selected radio endpoint.

Simul Select

Touching/clicking the SIMUL SELECT function pad shall allow subsequently activated circuits to act in parallel. The background pad color of all simultaneously selected channels shall change to a pre-defined color to indicate a SELECTED channel status. Transmit channel audio and PTT functions shall be simultaneously sent to all simultaneously selected channels.

Retouching/reclicking the SIMUL SELECT pad shall deactivate all of the selected circuits.

Supervisory Control

This pad shall allow the operator to take control of a busy channel utilized by another operator. A supervisory controlled channel shall indicate a BUSY status on the controlled operator's position.

System Clock

This module shall be placed on the screen and be configurable for 12 or 24 hour display formats. Multiple clocks shall be supported on the same or multiple screens and each shall support programming to a unique time zone if desired.

Test Tone

This pad shall cause a 1000 Hz tone to be generated and inserted into the transmit audio path. Tone level shall be indicated on the console VU bar graph.

Volume Control

This function module shall allow the operator to adjust a selected line's "Select" and "Unselect" audio levels. The Volume display shall indicate the name of the selected line for clarity.

VU Meter

The Operator screen shall support the display of a VU bar graph that depicts the measured audio amplitude of outbound audio from the dispatcher's console position. This module shall be configurable for size and may be located anywhere on the operator's screen.

10.0 ANI Signaling

The system shall be capable of interfacing with ANI signaling encoders/decoders. ANI information shall appear on the display in the radio call queue, activity history and in the associated radio circuit pad. The call queue and/or activity history displays shall provide an alias for the calling mobile(s) if so designated. The mobile ID shall be displayed in the associated radio circuit pad. In the event of an emergency call, both the mobile ID and the alias shall be displayed in red.

The queue shall display up to ten unanswered calls at a time. A NEXT RADIO pad shall be provided to select calls from the queue on a FIFO basis. Entries shall be automatically deleted once the call is selected. A SCROLL DOWN function shall be provided to allow selection of any call displayed in the queue.

The system shall be capable of selectively calling individual mobiles. The system shall allow the operator to select a radio base station, enter the vehicle ID code, and then send the selective call. Indication of the current vehicle ID entered as well as the previous ID shall be provided for the operator.

11.0 Time Synchronization

An optional Ethernet NTP time sync interface shall be available to accept an external ASCII update per second to synchronize the system time of day clock.

12.0 Multiple UNSELECT Speakers

Up to ten (10) additional/optional Speaker modules with volume controls shall be supported.

13.0 Caller ID

The system shall optionally support the CLASS features Calling Number Delivery and Calling Name Delivery. When only Calling Number Delivery is available, the system shall search its database for a matching phone number and the name from the database shall be displayed in the Call Queue and the Selected Line status area.

14.0 Diagnostics

The proposed solution shall be capable of providing an easy to use diagnostic tool to assist in troubleshooting of the system. Tools shall be browser based accessible via standard web browsers or through the common project management tool. Local detailed log files shall be stored on all system components to ensure rapid identification of events.

Graphic representation of components shall be made available to assist in visually identifying hardware and/or software elements which may be out of service or in error.

15.0 Training and Installation Assistance

Training shall be provided on site concurrent with installation assistance by vendor field engineering personnel. Training shall cover theory of operation, troubleshooting techniques, system database entry, and emergency restoration procedures. Maintenance training shall be conducted at a level of comprehension suitable for an electronic technician. Operator training shall also be provided.

The following types of training shall be provided:

- Operator Training -On-site operator training shall be provided to all dispatchers and supervisors. Up to four sessions over a two-day period of on-site Operator Training to be available. This portion of training period should not exceed two hours per session. All course materials shall be included.
- Maintenance Training -On-site maintenance training shall be provided to maintenance personnel. This portion of the training period should not exceed two days per session. All course materials shall be included.
- System Administration Training - On-site system administration training shall be provided to supervisory and/or maintenance personnel. This portion of training should not exceed eight hours per session. All course materials shall be included.
- Ten days of on-site installation supervision by field engineering personnel is required with this proposal.

16.0 Warranty and Support

All supplied products shall be free from defects in material and workmanship. The obligation under this warranty is limited to replacement or repair of such products within one (1) year from date of system installation. System installation shall occur within ninety (90) days of shipment.

Any repaired or replacement parts furnished under this warranty will be warranted for the remainder of the warranty period of the equipment in which it is installed.

Extended Warranty and Technical Support options shall be provided by the supplier as “Optional” line items and must extend out to five (5) years.

17.0 System Configuration Overview Console

The system shall be provided with the following : Equal or Same

System Configuration and Requirements	DETAILS
Total Locations	1 Dispatch Center, one radio sites
2 console positions	Full positions, include PC and Monitors

Additional Peripherals	Footswitch, Desk Mic, Add Speakers, Add Jack Box, UPS
Instant Recall Recorder	Integrated Recall per console position
# Radio Channels	Conventional Analog 2/4W, Tone Remote Control
Camera	Integrated Camera system
# Telephone Lines/Ext.	Analog POTS/SIP PBX integration
Auxiliary Outputs	24 HQ
Auxiliary Inputs	24 HQ
Cabinet/Relay Rack	Cabinet, shelves, power supplies to support Gateways/Endpoints

18.1 – Radio Console Parts and Description

Line Item	Qty	Description	Price
1	2	Scout Console Package - Includes Media Workstation, single jack box, dual speakers, Scout Console and Project Manager software, and serial cable.	
2	2	Dual Speakers - for DSPatchNET/Scout Consoles	
3	2	Desk Microphone - for DSPatchNET/Scout Consoles	
4	2	Single Footswitch - for DSPatchNET/Scout Consoles	
5	6	Headset - Supra Model H251 with base	
6	1	Redundant VPGate Software License for a maximum of 40 endpoints; up to 20 may be "B" Licenses, Version 1.x	
7	4	Outpost Radio Controller, VoIP, 2 ports, 12VDC input	
8	8	Outpost Radio Cable, generic part number	
9	8	Outpost RJ-45 Radio Connectors	
10	1	Outpost Rackmount Package - 3U rackmount shelf (holds 1 - 4 Outposts), plus 3U 12VDC rackmount power supply	
11	1	Input/Output Package for Scout and DSPatchNET, includes one 24-input and one 24-output rackmount panel, rackmount power supply, and cabling	
12	1	Rackmount ANI-alias decoder cage with 110/220VAC power supply for up to 10 ANI-alias decoder cards	
13	4	ANI-alias decoder card, supports decode and encode of MDC1200, GE-STAR, and FleetSync protocols. Requires ANI-rack (Line Item 12)	
14	1	42U (70") rackmount enclosed cabinet. Includes LCD KVM, ventilation fan, and UPS backup.	
15	1	Industrial 19" rackmount workstation with Windows XP Pro 32-bit or Windows 7 Pro 32-bit, Dual HDD with RAID 1 or single SSD.	
16	1	Generation and submittal of equipment integration specifications for external devices.	

17	0	Voice Logger - 8 analog channels, 8 VoIP channels, rackmount, redundant power supplies, 1 TB data storage, integration to console via RTP	
18	4	20" LCD monitors for dispatch systems plus all mounting equipment.	

18.2 – Radio Console Spares and Optional Equipment

Line Item	Qty	Description	Price
19	2	20" LCD touchscreens - 1 per console position	
20	2	Integrated Recall Recorder - records all Select/Unselect channels on each console, up to 60 minutes recording time, instant playback via Scout Console position.	
21	1	Extended Warranty / Technical Support (Parts, Software and Technical Phone Support after Year 1)	See Line Item 27

18.3 – Radio Console Professional Services, Installation, Expenses

Line Item	Qty	Description	Price
22		Lump Sum Project Management, factory staging, configuration, and support, inclusive of travel and living expenses.	
23		Console Installation Console Installation two positions, program and configure computers, wire management, 50-pair punch down blocks, all wiring, rack equipment, shelving, power strips. All accessories and equipment not listed will be supplied by Vendor.	
24		Console Connection to Auxiliary Input and Output Control of lights, bay doors, etc. List of equipment to be controlled, as well as point of cross-connect, provided by the Customer. Console equipment will be cross-connected by Vendor.	
25		Connection to Radios Move radio equipment from existing location to new data room. Re-route antenna cabling. Install all equipment in new racks. Connection of radios to the console equipment by Console Vendor. Complete custom programming by Console vendor of all radio equipment to be connected. All radio equipment to be supplied by Customer.	
26		Optional Extended Warranty / Technical Support Parts, Software and Technical Phone Support after Year 1	

19.0 Telephone System Scope

This specification defines minimum requirements for a Voice over Internet Protocol (VoIP) based telephone system. The system shall be capable of supporting multiple locations connected by a common LAN (VPN, Point-to-Point wireless broadband, etc.), as well as sharing resources (trunks, PRI circuits, voicemail, PA systems, etc.) between multiple locations. The preferred system will be capable of expanding to a minimum of 100 digital/IP phone extensions per location.

All equipment shall be capable of interoperating over an Enterprise Ethernet based system. The phone system must be capable of integrating with the VoIP radio console specified in sections 1.0 – 18.0. Integration must include SIP-based phone extensions that will be utilized by the VoIP radio console positions.

20.0 Telephone System Capacity

The system design shall be capable of interfacing up to 384 telephones (analog, IP, 3rd part SIP) per control unit, and shall be equipped with the following telephone endpoints:

Location	Digital Phones	IP Phones	SIP Phones
Town Hall	17	0	0
Government Center	27	0	6
Fire Station 1	2	0	0
Fire Station 2	2	0	0
Fire Station 3	3	0	0
Fire Station 4 / Rescue	4	0	0
Fire Station 5	7	0	0
Fire Station 6	3	0	0
DPW	4	0	0
DPW Transfer Station	0	1	0
PD/Animal Shelter	0	1	0

Each location shall be capable of the following amount of analog telephones (fax, etc.):

Location	Analog Phones
Town Hall	8
Government Center	8
Fire Station 1	2
Fire Station 2	2
Fire Station 3	2
Fire Station 4 / Rescue	2
Fire Station 5	2
Fire Station 6	2
DPW	2
DPW Transfer Station	0
PD/Animal Shelter	0

21.0 Telephone System Voicemail Capability

Each extension shall be provided with a voicemail box. Voicemail server must be capable of hosting a full-featured auto attend system.

- Multiple auto attend menus
- Support for Night Service auto attend and automatic switch-over
- Capability of all locations to share one voicemail server
- Support for conference calling

22.0 Telephone System Architecture

The system shall be divided into six major components: control unit, expansion modules, base cards, daughter cards, telephone endpoints, licenses. Preliminary design based upon a needs assessment.

22.1.1 Control Unit

Each control unit shall be an Avaya IP Office IP500 v2 Control Unit (Avaya part #700476005). Each control unit shall be equipped with the following:

- (1) **Avaya IP Office v2 System SD Card – IP Office Version** (Avaya part # 700479710)
- (1) **Avaya IP500 Rack Mounting Kit** (Avaya part #700429202)
- (1) **Avaya Power Lead** (Avaya part #700289770)

22.1.2 Expansion Modules

Expansion modules must be compatible with the Avaya IP Office IP500 v2 Control Unit's rear expansion module ports. The following expansion modules will be acceptable:

- **Avaya IP500 Analog Trunk 16 Module** (700449473)
- **Avaya IP500 Digital Station 16 Module** (700449499)
- **Avaya IP500 Digital Station 30 Module** (700426216)
- **Avaya IP500 Office Phone 16 Module** (700449507)
- **Avaya IP500 Office Phone 30 Module** (700426224)

22.2 Base Cards

Base cards must be compatible with the Avaya IP Office v2 Control Unit.

The following base cards will be acceptable:

- **Avaya IP Office IP500 ATM Combination Card** (700476013)
- **Avaya IP Office IP500 Digital Station 8 Card** (700417330)
- **Avaya IP Office IP500 Analog Phone 2 Card** (700431778)
- **Avaya IP Office IP500 Analog Phone 8 Card** (700417231)
- **Avaya IP Office IP500 VCM 32 Card** (700417389)

22.3 Daughter Cards

Daughter cards must be compatible with the Avaya IP Office v2 Control Unit. The following daughter cards will be acceptable:

- **Avaya IP Office IP500 Analog Trunk Card** (700417405)
- **Avaya IP Office IP500 Universal PRI Trunk Card DUAL** (700417462)
- **Avaya IP Office IP500 Universal PRI Trunk Card SINGLE** (700417439)

22.4 Telephone Endpoints

Telephone endpoints must be compatible with the Avaya IP Office v2 Control Unit, expansion modules listed in 21.2 and base cards listed in 21.3. The following telephone endpoints will be acceptable:

- **Avaya IP Office 5420 Terminal** (700381627)
- **Avaya EU24 Key Feature Expansion Unit** (700381817) (**requires Avaya 1151D1 Power Supply 700434897 and Avaya Power Lead 700289770**)
- **Avaya IP Office 5621SW IP Telephone with Backlit LCD** (700385982) (**requires Avaya 1151D1 700434897 and Avaya Power Lead 700289770**)

22.5 Licenses

Licenses must be compatible with the Avaya IP Office v2 Control Unit and IP Office Version 6 Software. The following licenses will be acceptable:

- **Avaya IP Office Preferred Edition (Voicemail Pro) RFA** (171991)
- **Avaya IP Office VoiceMail Pro RFA – 16 Port Upgrade** (174462)
- **Avaya IP500 PRI Channels – Add 8** (215181)
- **Avaya IP500 Voice Networking Add 4 RFA** (205650)
- **Avaya IP Office IP Endpoint License (R6) – 5 phones** (229445)
- **Avaya IP Office IP 3rd Party Endpoint RFA – 5 User** (174957)

23.0 Telephone Parts and Description

The following lists the equipment and license configurations required for the Town of Warren VoIP phone system.

23.1 Town Hall

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700417389	Avaya IP Office VCM 32 Card	
1	700417439	Avaya IP Office IP500 Universal PRI Trunk Card SINGLE	
1	700417231	Avaya IP Office IP500 Analog Phone 8 Card	
1	700426216	Avaya IP Office IP500 Digital Station 30 Module	
1	700417405	Avaya IP Office IP500 Analog Trunk Card	
19	700381627	Avaya IP Office 5420 Telephone	
1	171991	Avaya IP Office Preferred Edition (Voicemail Pro)	
1	174462	Avaya IP Office Voicemail Pro - 16 Port Upgrade	

1	205650	Avaya IP500 Voice Networking	
2	215181	Avaya IP500 PRI Channels - Add 8	
1	229445	Avaya IP Office IP Endpoint License (R6) - 5 phones	
2	700429202	Avaya IP500 Rack Mounting Kit	
2	700289770	Avaya Power Lead	
Total Parts Cost – Town Hall			\$

23.2 Government Center

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700417389	Avaya IP Office VCM 32 Card	
1	700417231	Avaya IP Office IP500 Analog Phone 8 Card	
1	700426216	Avaya IP Office IP500 Digital Station 30 Module	
1	700417405	Avaya IP Office IP500 Analog Trunk Card	
29	700381627	Avaya IP Office 5420 Telephone	
1	700385982	Avaya IP Office 5621SW IP Telephone (for Shelter)	
1	205650	Avaya IP500 Voice Networking	
1	174957	Avaya IP Office IP 3rd Party Endpoint - 5 User	
2	700429202	Avaya IP500 Rack Mounting Kit	
3	700289770	Avaya Power Lead	
1	700434897	Avaya 1151D1 Power Supply (for 5621SW IP Phone)	
Total Parts Cost – Government Center			\$

23.3 Fire Station 2

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700476013	Avaya IP500 ATM Combo Card	
2	700381627	Avaya IP Office 5420 Telephone	
1	205650	Avaya IP500 Voice Networking	
1	700429202	Avaya IP500 Rack Mounting Kit	
1	700289770	Avaya Power Lead	
Total Parts Cost – Fire Station 2			\$

23.4 Fire Station 3

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700476013	Avaya IP500 ATM Combo Card	
3	700381627	Avaya IP Office 5420 Telephone	
1	205650	Avaya IP500 Voice Networking	
1	700429202	Avaya IP500 Rack Mounting Kit	
1	700289770	Avaya Power Lead	
Total Parts Cost – Fire Station 3			\$

23.5 Fire Station 4 – Rescue HQ

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700476013	Avaya IP500 ATM Combo Card	
4	700381627	Avaya IP Office 5420 Telephone	
1	205650	Avaya IP500 Voice Networking	
1	700429202	Avaya IP500 Rack Mounting Kit	
1	700289770	Avaya Power Lead	
Total Parts Cost – Fire Station 4			\$

23.6 Fire Station 5

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700476013	Avaya IP500 ATM Combo Card	
1	700417330	Avaya IP500 Digital Station 8 Card	
7	700381627	Avaya IP Office 5420 Telephone	
1	205650	Avaya IP500 Voice Networking	
1	700429202	Avaya IP500 Rack Mounting Kit	
1	700289770	Avaya Power Lead	
Total Parts Cost – Fire Station 5			\$

23.7 Fire Station 6

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700476013	Avaya IP500 ATM Combo Card	
3	700381627	Avaya IP Office 5420 Telephone	
1	205650	Avaya IP500 Voice Networking	
1	700429202	Avaya IP500 Rack Mounting Kit	
1	700289770	Avaya Power Lead	

Total Parts Cost – Fire Station 6 \$
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23.8 DPW

Quantity	Avaya Part Number	Description	Price
1	700476005	Avaya IP Office IP500 v2 Control Unit	
1	700479710	Avaya IP Office v2 System SD Card - IP Office Version	
1	700476013	Avaya IP500 ATM Combo Card	
4	700381627	Avaya IP Office 5420 Telephone	
1	700381817	Avaya IP Office 5621SW IP Phone (DPW Transfer Station)	
1	205650	Avaya IP500 Voice Networking	
1	700429202	Avaya IP500 Rack Mounting Kit	
1	700434897	Avaya 1151D1 Power Supply (for 5621SW IP Phone)	
2	700289770	Avaya Power Lead	
Total Parts Cost – DPW			\$

24.0 – Telephone System Services, Installation, Expenses

Line Item	Qty	Description	Price
		Lump Sum Project Management, factory staging, configuration, and support, inclusive of travel and living expenses.	
		Telephone System Installation Installation of telephone system control units, modules, etc. Racking of all equipment. Cross-connect to existing trunks, extension positions, etc. All necessary cabling and cabling terminations (extensions, trunks).	
		Telephone System Programming Programming of all control units. Configuration and programming of all extensions. Configuration and installation of Voicemail Pro server. Configuration of Auto Attendant. Configuration of routing between control units.	
		Optional Extended Warranty / Technical Support Parts, Software and Technical Phone Support after Year 1	

Summary of Pricing

Radio Console and Telephone System

Equipment Only

Summary of Radio Console Parts / Spares and Optional Equipment

The following is the total pricing gathered from Section 18.1 and 18.2.

18.1 – Radio Console Parts and Description	\$
18.2 – Radio Console Spares and Optional Equipment	\$
TOTAL: Radio Console Parts / Spares and Optional	\$

Summary of Telephone System Parts and Equipment

The following is the total pricing being submitted for each of the Warren Town locations (from section 23.1 to 23.9).

23.1 – Town Hall	\$
23.2 – Government Center	\$
23.3 – Fire Station 2	\$
23.4 – Fire Station 3	\$
23.5 – Fire Station 4	\$
23.6 – Fire Station 5	\$
23.7 – Fire Station 6	\$
23.8 – DPW	\$
TOTAL: Telephone System Parts	\$

Total Equipment: Console Parts + Telephone Parts \$

Installation

Summary of Radio Console Professional Services, Installation, Expenses

The following is the total pricing gathered from Section 18.3.

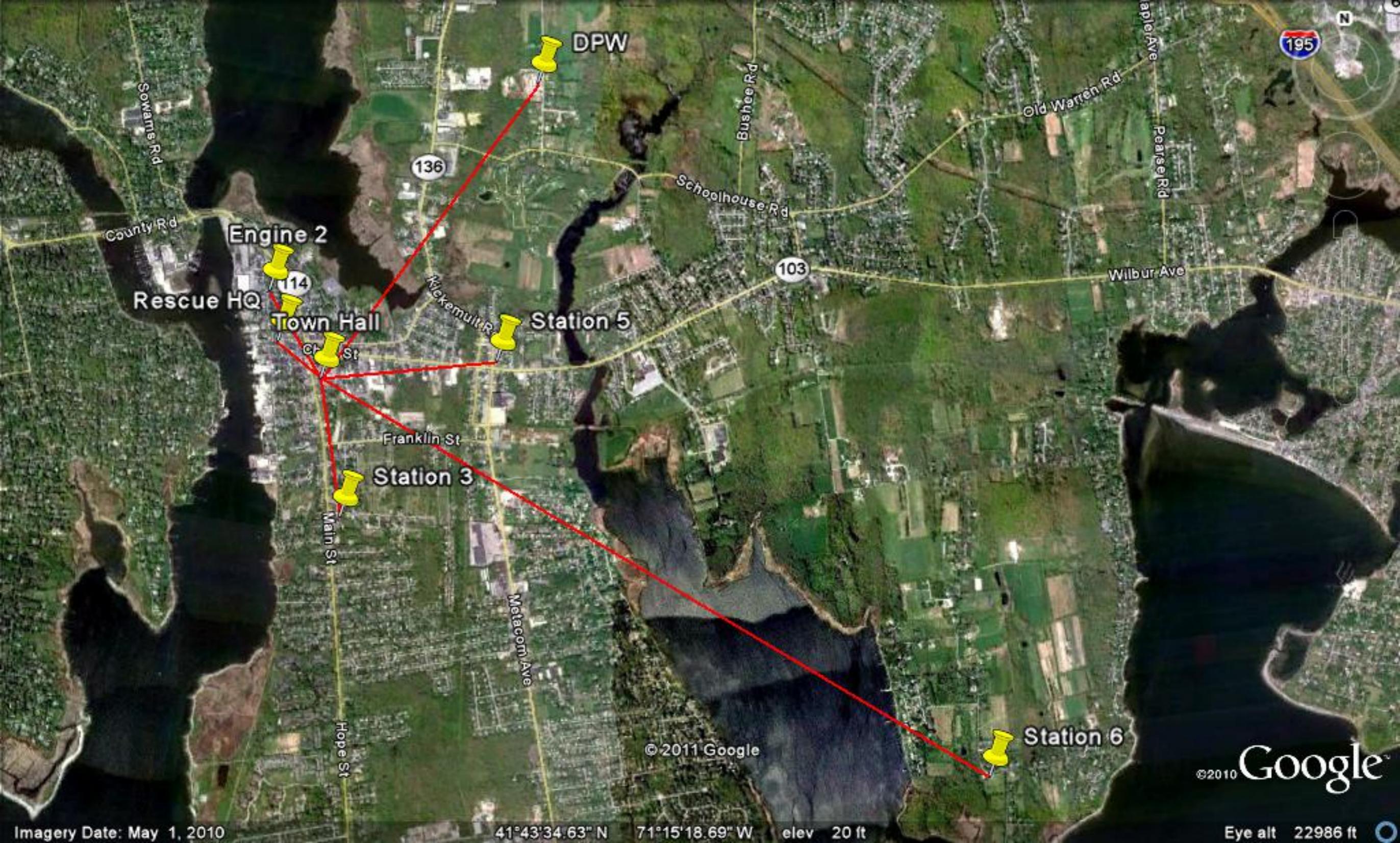
18.3 – Lump Sum Project Management	\$
18.3 – Console Installation	\$
18.3 – Console Connection to Auxiliary Inputs and Outputs	\$
18.3 – Connection to Radios	\$
18.3 – Extended Warranty / Technical Support	\$
TOTAL: Radio Console Installation / Warranty	\$

Summary of Telephone System Installation

The following is the total pricing gathered from Section 24.0.

24.0 – Lump Sum Project Management	\$
24.0 – Telephone System Installation	\$
24.0 – Telephone System Programming	\$
24.0 – Extended Warranty / Technical Support	\$
TOTAL: Telephone System Installation	\$

Total Installation: Console + Telephone **\$**



DPW

Engine 2

Rescue HQ

Town Hall

Station 5

Station 3

Station 6

136

103

195

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Imagery Date: May 1, 2010

41°43'34.63" N 71°15'18.69" W elev 20 ft

Eye alt 22986 ft

Optional A

Town-Wide Network Video Recorder Camera System

1. NVR System Specifications

This specification defines the minimum requirements for a town-wide Network Video Recorder (NVR) camera surveillance system. The system shall be capable of supporting cameras and NVRs at all town locations within Warren. All equipment shall be capable of operating over an Enterprise Ethernet network (VPN, point-to-point wireless, etc.).

1.1. Remote Viewing Software

NVR systems must be capable of remote viewing access from a central location (dispatch) using remote camera viewing software.

The NVRs must allow connections from multiple users, as well as access restrictions for the users:

- Permissions per camera
- Permissions per action (playback, edit, etc.)

1.2. Motion Relay Activation

NVR systems must be capable of activating relays on motion detection on a per-camera basis. These relays must be capable of integrating to the Radio Console Auxiliary Input cards described in the bid specification **Section 6.1.2**.

1.3. Support for IP Cameras

All locations needing cameras may not be able to accommodate a full NVR unit, in this case, proposed NVR units must support connection and recording from IP cameras.

2. Camera Specifications

The following cameras or equal will be acceptable.

- Panasonic WV-CW504S Vandal Proof Dome
- Panasonic WV-NW502S Vandal Proof Dome (IP camera)
- Panasonic PTZ camera

3. Camera Location Specifications

Location	Description	Analog	IP
Town Hall	Booking	2	0
Town Hall	2nd floor lobby	1	0
Town Hall	1st floor lobby	1	0
Town Hall	Cell blocks	2	0
Town Hall	Interior sally port	1	0
Town Hall	Rear lot	1	0
Town Hall	East side exterior of police station	1	0
Town Hall	North side exterior of police station	1 PTZ	0
Town Hall	West side exterior of police station	1	0
Town Hall	East side exterior of fire HQ	1	0
Town Hall	Hallway	4	0
Town Hall	Interior Council	1	0
Town Hall	Finance	1	0
Government Center	Interior hallway	4	0
Middle School	entrance to Kickemuit Middle School	0	1
Animal Shelter		0	2
Elementary School	entrance to Hugh Cole School	0	1
High School	entrance to Fatima HS	0	1
Dept of Public Works	Including Transfer Station Operations	0	2
Burr's Hill Park	Hacth Shell Concert Area	0	1
Town Wharf		0	1
Sewer Plant		0	1
Rescue		0	1
Project Playground	Pete Sepe Pavilion & Surrounding Area	0	1
Engine 1 room		0	1
Engine 3 room		0	0
Ladder Company Room		0	1
Engine 5 room		0	1
Engine 6 room		0	2
		Total Analog	Total IP
		22	18

4. Installation and Labor Specifications

The following shall be the responsibility of the bidder:

- Installation and configuration of IP and analog cameras:
 - Data and power wiring from data switch to IP cameras
 - Video and power wiring from NVR location to analog cameras
 - Mounting of IP and analog cameras

- Installation and configuration of NVR units
- All mounting hardware for cameras (housings, etc.) shall be the responsibility of the vendor.
- All external cameras shall be mounted using 'gooseneck' housings.
- All power supplies for cameras shall be the responsibility of the vendor.

Please provide installation period from completion of VoIP Dispatch Console and Telephone Systems:

5. Optional A Pricing

Please fill in the following pricing.

Item	Price
Equipment and Description	\$
Installation	\$
Total Price – Equipment + Installation	\$

Optional B

Town-Wide Wireless Point-to-Point IP/TDM Network

1. Project Description

The Town of Warren wants the vendor to install a new Point-to-Point wireless IP/TDM network, spanning all of the Town buildings. Network connectivity shall be provided by the vendor from the vendor-supplied radios to the Town's switch gear at each location. Network connectivity parameters shall comply with the Town IT Team's needs. Point-to-Point wireless TDM radio tie lines are also required to the same locations. TDM links are required for analog audio connection to the Town's backup dispatch position located at fire station 5.

Submitted pricing shall include Point-to-Point radio equipment, cabling, mounting hardware (brackets, poles where needed, etc.). Any equipment not mentioned in this specification, but required for proper installation of Point-to-Point links shall be provided by the bidder, and shall be taken into account when submitting final pricing. All links shall utilize dual polarization antennas in order to accommodate both a data and TDM radio.

It shall be the responsibility of the vendor to perform a topographical study of the Town of Warren. Topographical study must be submitted to the Town on award of bid.

Bidders are required to include a summary of antenna mounting poles (heights, pole types, etc.) with bid submission. The Town of Warren requires installation of an 80' steel pole at Fire Station 6 and a 60' steel pole at the DPW. Summary must include antenna mounting specifications for each location (as follows in section 3).

2. Equipment Requirements and Specifications

2.1. Data Links - Radio Minimum Requirements and Specifications

- A. Each 'Link' shall consist of a 'base' and 'subscriber' unit
- B. Radios shall have the option of AES 128 bit encryption
- C. Minimum 54 Mbps data rate
- D. License-exempt 2.4 GHz and 5.x GHz or licensed 4.9 GHz frequency bands
- E. Ruggedized Waterproof All-Weather NEMA 4 Enclosure
- F. WPA, WPA2 & 64/128 bit WEP Data Security, MAC Address Filter, Intra-BSS Traffic Blocking (Layer 2 Isolation)

- G. Fully Transparent Layer 2 Bridge
- H. Web-Based Management Interface

2.2. TDM Link (Town Hall to Station 5 only) – Radio Minimum Requirements and Specifications

- A. Minimum of (3) 4-wire 600-ohm balanced TDM circuits per link (Station 5 Only)
- B. Modular RJ-11 (4-conductor) or RJ-45 plugs on radio for connection to radio equipment
- C. Rugged and Weatherproof NEMA 4 Enclosure
- D. License-exempt 2.4 GHz and 5.x GHz or licensed 4.9 GHz frequency bands

2.3. Data and TDM Link Antenna Minimum Requirements and Specifications

- A. Dual polarization antennas (both horizontal and vertical)
- B. Weatherproof Radom enclosure
- C. Double saddle mounting brackets
- D. Wind Survival: 120 miles/hour

3. Point-to-Point Link Location Specifications

The Town of Warren has been authorized to mount Point-to-Point link antennas to the radio tower located outside of Town Hall. The Town requires this tower to be the origination point for all wireless links.

- Town Hall – 514 Main St
- Fire Station 2 – 102 Water St
- Fire Station 3 – 3 Vernon St
- Fire Station 4/Rescue HQ – 34 Miller St
- Fire Station 5 – 342 Metacom Ave
- Fire Station 6 – 99 Touisset Rd (Pole)
- DPW – 21 Birchswamp Rd (Pole)

Link Locations	Data Link	TDM Link
Town Hall to Fire Station 2	X	
Town Hall to Fire Station 3	X	
Town Hall to Fire Station 4/Rescue HQ	X	
Town Hall to Fire Station 5	X	X
Town Hall to Fire Station 6	X	
Town Hall to DPW	X	

4. Installation and Labor Specifications

4.1. Installation Specifications

- All link equipment must be properly grounded and protected against lightning/power surges.
- All data/TDM cabling from the Point-to-Point link equipment to the integration termination points shall be the responsibility of the bidder.
- All cable terminations shall be the responsibility of the bidder.
- All hardware required for mounting equipment and cabling shall be the responsibility of the bidder.
- All cabling (data, antenna, etc.) shall be the responsibility of the bidder.

Please provide installation period from completion of VoIP Dispatch Console and Telephone System.

4.2. Labor Specifications

All tower rigging, antenna installation, and cabling, shall be the responsibility of the bidder.

5. Optional B Pricing

Please fill in the following pricing.

Item	Price
Equipment Station 2	\$
Installation	\$
Equipment Station 3	\$
Installation	\$
Equipment Station 4	\$
Installation	\$
Equipment Station 5	\$
Installation	\$
Equipment Station 6	\$
Installation	\$
Equipment DPW	\$
Installation	\$
Station 6 – Equipment – 80’ Steel Pole (optional Bid)	\$
Installation (optional Bid)	\$
Dept of Public Works – Equipment – 60” Steel Pole (Optional Bid)	\$
Installation (optional Bid)	\$
Total Price – Equipment + Installation	\$

BID FORM

TO: Town of Warren
Office of Town Clerk
514 Main Street
Warren, Rhode Island 02885

PROJECT: Optional A and/or Optional B – Town wide Communications System

Date: _____

Submitted By: _____

Include Address _____

Telephone # _____ Fax _____

BASE BID

Having examined the specifications and other Contract Documents prepared by the Town of Warren for the above mentioned project, we the undersigned, hereby propose to perform the Work as set forth in the specifications for the following cost.

Optional A

Summary of NVR Camera System Equipment

The following is the total pricing gathered from ‘Optional A’.

(22) Panasonic WV-CW504S Analog Cameras	\$
(19) Panasonic WV-NW502S IP Cameras	\$
Accessories and other equipment (racks, cabling, etc.)	\$
Installation of cameras at locations specified in Optional A - Section 3.	\$
TOTAL: NVR Camera System Equipment / Installation	\$

Optional B

Summary of Town-Wide Point-to-Point Wireless System

The following is the total pricing gathered from 'Optional B'.

Parts – radios, antennas, cabling, mounting hardware	\$
Labor – installation, configuration, programming	\$
TOTAL: Point-to-Point Wireless Parts + Labor	\$

OPTIONAL ITEMS

3. Total Bid for Optional A: \$

(Price in figures)

(Price in words)

4. Total Bid for Optional B: \$

(Price in figures)

(Price in words)

PROJECT TOTAL

5. Total Bid for Project:

\$ _____

(Price in figures)

(Price in words)

EXCEPTION:

DELIVERY DATE:

PAYMENT TERMS:

ACKNOWLEDGEMENT OF ADDENDA

List number and date received for each addendum.

Addendum _____

Addendum _____

ACCEPTANCE

This bid shall irrevocably open to acceptance for 90 days from the bid closing date.

SIGNATURES

(Bidders Printed Name)

By: _____
(Signature)

Title: _____

Date: _____